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ABSTRACT

This paper examines trends in occupational mismatch in the metal, building, vehicle, and electrical trades and questions whether the process of award restructuring that began in the late 1980s has created incentives for unskilled blue collar workers to pursue skill-based career paths in the trades. Chapter 1 discusses the paper's aim and history of apprenticeship. Chapter 2 presents an overview of tradesmen, qualified and unqualified, between 1971-96 and gives a perspective of how many unqualified tradesmen have been working each trade area, what sorts of jobs qualified tradesmen have taken, and possible reasons for high levels of unqualified tradesmen. Chapter 3 reviews both legislative rules and procedural behaviors that have inhibited or promoted the formal training and recognition of unqualified adult tradespeople. Chapter 4 examines the effect of training market reforms over the past 10-15 years on the career progression of experienced, but not apprenticed, tradespeople in the main trades. Chapter 5 estimates a model of the comparative level of job satisfaction for tradespeople that was developed in seeking information on why the trades have high attrition rates. Chapter 6 looks at the role of post-trade training in lowering attrition of qualified tradespeople from the trade. Chapter 7 concludes with recommendations for further research. (Appendixes include 50 references, state training legislation, and main data sources consulted.) (YLB)

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NCVER Australian Apprenticeships

Training for the skilled trades in Australia, 1980 to 2000

Training reforms

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Executive summary

Aims

This paper examines trends in occupational mismatch in the metal, building, vehicle and electrical trades and questions whether the process of award restructuring which began in the late 1980s has created incentives for unskilled blue collar workers to pursue skill-based career paths in the trades. In so doing, it has been necessary to examine the reasons for high attrition rates by qualified workers from their trade as well as the motives behind employers' decisions to hire unqualified workers to do trade work.

The study focuses on the metal, building, electrical and vehicle trades which account for over two-thirds of the traditional trades. As such, it is primarily about men as they dominate these trades.

The analysis contained in the body of this study has used secondary data sources to detect trends over time in training rates, levels of attrition and the amount of upgrading. The employed method of analysis is not definitive, but rather indicative. By combining gross trends and comparisons in the data with deductive reasoning, the analysis can only *suggest* causal relationships in the labour market.

To assess the effect of policy and institutional changes instigated during the late 1980s, a lengthy post-change review period such as ten years is required. Accordingly, it is premature at this time to undertake a labour market assessment of the New Apprenticeship initiatives that began nationally in January 1998.

The term 'apprenticeship' in this report is considerably narrower than current usage and refers to only the traditional three-to-four-year apprenticeship in the manual trades.

Labour in the skilled trades, 1971–96

Despite strong indicators of high vacancy rates for most types of skilled tradespeople throughout the 1950s, 1960s and 1970s, the emerging labour market data of the 1970s revealed concurrent large numbers of qualified tradespeople working in jobs that required skills well below trade level. This situation operated simultaneously with very high levels of unqualified people working as tradespeople.

In the metal, building, vehicle and electrical trades during 1971, about 4 in 10 men working as skilled tradesmen did not have a trade certificate. By 1996, this had fallen to 2.5 in 10 for the metal, vehicle and electrical trades and 3 in 10 for the building trades.

Only limited evidence exists on the reasons employers hire unqualified workers to do skilled work. Nevertheless, difficulties in recruiting formally trained workers do not appear to be a major cause. Earnings data have been examined to show how highly employers value a trade qualification compared with lesser qualifications and no qualifications. The data indicate that trade qualified workers only receive a small premium over people with a one-year qualification in both trade jobs and intermediate and elementary production jobs. While this suggests that they are more productive, it is not clear that all jobs within this broad occupation warrant the full skilled trade level qualifications. Many employers have been content to

upgrade workers to do trade jobs (rather than bid up wages for qualified ex-trade tradespeople) which implies that a significant minority of jobs do not need formally qualified workers.

Factors inhibiting training paths for unqualified tradespeople

If as many as 4 or 2.5 in 10 workers are satisfactorily performing trade work without formal training, then the value of a considerable portion of the training system is in some doubt. Trade jobs which require less than the full set of practical and theoretical trade skills should be more appropriately classified as jobs requiring a shorter, more basic, level of qualification. Alternatively, some people may efficiently acquire the necessary trade skills on the job and have small need for the formal limitations and requirements of an officially controlled training program.

Relatively high levels of unqualified tradespeople indicate some type of failure by the training system to provide an appropriate mix and quantity of training courses for workers and businesses. Some of the inflexibility of apprenticeship arises from the traditional assumption that trade training should be a (workforce) entry pathway. This has made traditional trade training less suitable for older workers who require structures which offer scope for prior recognition, more out-of-normal working hours class times and a smaller salary sacrifice on account of their financial commitments, maturity and work experience. Potentially, the training system should offer types of training and accreditation such as:

- short courses in the trades area for trade jobs that do not require the full set of trade skills
- training programs for experienced workers who require additional or top-up off-the-job training/education to achieve the competency of formally trained worker
- accreditation procedures for workers who have acquired full competency but have not completed an apprenticeship

By 1980, there were only a few legislative impediments which inhibited the flexibility of the trade training system but almost all of these had disappeared by 2000. Some remaining barriers may, however, be encoded in regulations.

Prior to the process of award restructuring which began in the late 1980s, wage and job classification structures and the work culture in many firms were not designed to encourage workers to upgrade skills through ongoing training courses. Few opportunities existed for unskilled and semi-skilled workers to progress through to skilled status and beyond. Evidence from the 1990s indicates that more than half of large firms had made some attempt to introduce job classification structures conducive to career paths and training. By 1990, one in four firms with more than 20 employees, whose main occupation group was tradespeople, had introduced career paths and between one in three and one in five firms had introduced formal training where previously none had existed. Structures, especially in the metal trades, were established to support adult apprenticeships and training pathways for sub-trade level workers.

Aside from legislative and award provisions, the training pathway for skilled manual workers can be blocked at several junctures. An examination of the formal recognition procedure for people who had acquired the required level of competency, and, the processes for allowing partially skilled people to complete the skill process (access to off-the-job courses, credits of indenture terms and recognition for prior learning), reveal that this pathway is more of a windy and unsignposted track than a clear channel. Many of the courses and accreditation processes are semi-unofficial, ad hoc and not widely advertised. The *Tradesmen's rights regulation act 1946*, State and Territory recognition legislation are best known and most established but these appear to supply, at most, only 3–4% of recognised domestically trained tradespeople. Lack of co-ordination among relevant training parties, lack of pecuniary incentives by the registered training organisations (RTO) to recognise existing skills and

provision of information to workers and employers in the more fragmented parts of industry appear to have hindered the formal skill accumulation process in some States.

The low importance of these extra-apprenticeship methods for allowing people to supplement their skills and acquire full AQF-III (Australian Qualifications Framework) status is epitomised by absence of any serious data collection on this issue.

The incidence of adult trade training

Having looked at the existence of institutional or legislative barriers and positive provisions for training pathways, data is examined on:

- the incidence of training among production (blue collar) workers
- the number of apprentices or people undertaking skilled vocational education receiving recognition of prior learning (RPL)
- the number of adults in trade training
- the number of people who were formally upgraded as adults working in the trades

Most of the data will only reveal trends from 1989 to the mid-1990s. The slow diffusion of information on training reforms and the length of time required for firms to change their human resources management systems in industry implies that it is too early to detect effects from the New Apprenticeship reforms of 1998.

Most data sources are consistent with the view that, since the late 1980s, adults have become more likely to gain a skilled vocational qualification. Provisions for the recognition of existing skills have assisted this change. However, the number of adults involved appears very small, especially compared with the number of unqualified tradespeople currently working in the metal, building, vehicle and electrical trades. There is no rise in the tendency for tradespeople to gain formal accreditation for skills gained informally or overseas.

Job satisfaction for trade qualified workers

Expected and actual job satisfaction is an important determinant of the desire to undertake education and training and to prematurely leave an occupation. A model to test for the determinants of achieved pecuniary and non-pecuniary job satisfaction according to post-school qualification has been devised. Even though it is not possible to objectively compare satisfaction levels across individuals, different levels of subjective satisfaction across groups of the workforce may explain systematic differences in labour market behaviour.

The analysis found that trade qualifications are associated with lower levels of measured non-pecuniary job satisfaction and pre-tax wages and salary income. That is, once other factors such as schooling, age, sex, work experience, location etc. are taken into account, people with a trade qualification have lower wages and lower non-pecuniary job satisfaction than other qualification groups. They are similar in this aspect to people with no post-school qualifications.

These results provide a basis for questioning the quantity and quality of labour that is attracted into the trades and into trade qualifications. It also provides a partial explanation for the observed attrition from the trades, especially into lower paying jobs.

Attrition from the trades

Attrition or wastage from the skilled manual trades has been acknowledged for some time as a factor contributing to the shortage of skilled tradespeople in certain markets. Separation from the 'home' occupation is generally higher for tradespeople than for professional and para-professional workers and is inversely correlated with median income. Lack of careers

paths and limited opportunities for promotion though training pathways were highlighted during the late 1980s as a source of job dissatisfaction and subsequently high rates of attrition. In addition to its other goals, award restructuring was intended to specifically address this shortcoming.

A minority, albeit a growing one, of qualified tradesmen has been moving into 'higher' managerial or technical occupations where their trade skills are likely to be used to some extent. However, many qualified tradespeople are also taking semi-skilled or unskilled manual and service sector work. In 1996, 17.9% of metal, vehicle and electrically qualified tradesmen and 14.4% of qualified building tradesmen were working in these less skilled jobs. A further 8–13% were working in clerical and sales jobs where the relevance of trade skills is unclear. The percentage of trade qualified men working in a less skilled job compares with 7.4% for tertiary qualified men.

High wastage or attrition is often found in occupations where there are comparatively few prospects for advancement and the main avenue for job variety and challenge is acquired through changing jobs or occupations.

Careers paths for tradespeople, as measured by their incomes, are considerably flatter compared with other major classes of skilled worker. Generally, qualified tradespeople who leave the trade for managerial jobs also improve their earnings but those who leave for other occupations do not. Tradespeople who take up unskilled labouring jobs generally suffer a decline in earnings.

Qualified tradespeople leave the trade for a range of reasons, the most common being to get a better or more interesting job. Coming a close second in importance are those who left to get better pay or seek a promotion. These findings reinforce the analysis on job satisfaction above. Few people were discouraged by the conditions of work, and only a small percentage left because of a lack of work.

This section also sought to inquire whether participation by qualified tradespeople in post-trade training courses would produce more highly skilled workers who have higher productivity and can thus command higher wages. Unfortunately the empirical evidence is contradictory. The 1997 Australian Bureau of Statistics (ABS) education and training survey suggests that workers who have undertaken further training improved their work efficiency; however, the Melbourne Institute of Applied Economic and Social Research (Melbourne Institute) survey suggests that on balance they do not lead to higher wages. The ABS survey indicates that training does not have much impact on the participant's promotion prospects; however, in the Melbourne Institute survey, respondents claimed that, on average, training courses lead to better and more interesting jobs and had a significant effect on career paths.

It is possible that heterogeneity within the trade group or difference in survey year have contributed toward these varied responses. Some trades or some types of tradespeople may be affected differently by training. Unfortunately the level of information available at hand does not permit us to reach a conclusion.

What should be done?

Current problems with the training system appear to arise not so much from the numbers in training, but from the level of training qualifications on offer and the high attrition rates from the trades. Ideal training or education systems are self-regulating. This means that signals from customers and new technologies are transmitted through firms to prospective students and workers and training providers without third party intervention. Three basic conditions are required for such a flexible and accommodating system:

- Regulatory and institutional impediments should be removed. The award restructuring process which began in the 1980s has prompted most prerequisite legislative and award reforms. Training packages, and the provision for AQF II level certificates in the traditional trades, which have been operational since 1999, should be regarded as a major

advance in this area. However, the path for the skill recognition of workers trained through means other than the apprenticeship or the TAFE system, still appears complicated and marginal to the main training system. This is especially the case for adult workers who cannot attend classes during normal business hours. Incentive structures within the TAFE system may be discouraging adults to pursue these training pathways.

- The incentive structures to encourage workers to train and remain in jobs that use their skills should be strengthened. Without the correct incentives for school leavers and unqualified workers to complete a training course, there is little point removing impediments. High leakage rates out to other occupations makes training an expensive skill creation option. Specifically, the wage differential for skill should be increased, especially the increment for years of experience. Conditions of work, prospects for advancement and the non-pecuniary rewards from certain jobs should be improved to encourage the highly skilled to remain within their trade.
- Finally, the training and work culture of the relevant industries needs to be educated to keep abreast of the new developments in the training system. This is a difficult and expensive task to accomplish and probably requires extensive site visits as well as a continuation of existing information material. The flow of information needs to be ongoing and, of course, two-way.

Further research

Two major themes emerge from this study which are important for an efficient, self-regulating vocational training market: firstly, whether there should be an expansion and heavy promotion of basic vocational qualifications in the metal, building, electrical and vehicle trades to cater for the market currently occupied by upgraded tradespeople. The second theme concerns the incentive for workers to obtain formal training and then consistently applying these acquired skills to related occupations. Part of this proposed investigation would look at why wages over the life cycle are so low or flat for qualified workers by comparison with unqualified workers.

Research on the first topic should include the reasons employers hire unqualified workers to do trade work. Lack of data on this topic has forced the study to rely upon old ad hoc surveys and data that in many cases do not provide enough detail to make an argument or conclusion definite.

Suggested research questions include:

- whether informal skill acquisition is or is not a more efficient mode of training for some trades
- level of knowledge held by employers and workers about AQF II level qualifications
- reasons for lack of sponsorship of existing employees as AQF III apprentices for upgrading employers
- reasons for lack of sponsorship of existing employees as AQF II apprentices for upgrading employers

Research for the second topic should look at which employers are claiming shortages of or difficulties in attracting skilled workers and reasons why they don't increase the pecuniary or non-pecuniary employment package offered to their skilled workforce (but not their lesser skilled workers). Higher life cycle rewards for vocationally trained workers will affect interest by school student in apprenticeships (both the calibre and number of students) and should stem attrition from the trades.

1 Introduction

Aim

The loss of experienced or qualified people from their occupation of training commonly represents a loss of skills and productivity to the household, the industry and by inference the nation. While zero skill separation is never likely to be optimal, most trade occupations enjoy the dubious position of having the highest rates of mismatch between qualifications and jobs (see Thomas 1988a, 1988b).

This paper examines trends in this mismatch and asks whether the process of award restructuring which began in the late 1980s provided incentives for unskilled blue collar workers to pursue skill-based career paths in the trades. In so doing, it has been necessary to examine the reasons for high attrition rates by qualified workers from their trade as well as the motives behind employers' decisions to hire unqualified workers to undertake trade work. The study focuses on the metal, building, electrical and vehicle trades which account for over two-thirds of the traditional trades. As such, it is primarily concerned with the male labour market.

The analysis begins with the premise that the large numbers of unqualified tradespeople doing trade work and comparatively high attrition rates of qualified workers from their trade are *prima facie* grounds for believing that there are several tiers or sections within the 'trade' labour market. Short career paths may be limiting the incentive for qualified tradespeople to stay within their trade, while, at the same time, employers are content (other things considered) to employ unqualified workers to do 'trade' work rather than offer higher wages to attract or retain qualified workers.

Short career paths imply an early levelling-off or decline in earnings with age or experience relative to other occupations. They arise because either skill appreciation diminishes beyond a certain experience level or because certain barriers are inhibiting the potential skill appreciation.[1] In relation to the first reason, it is possible that:

- Valuable production work skills do not keep accumulating with further work experience after a certain time in trade work. Valuable work skills may in fact decline beyond a certain age if the work is physically demanding. The implied skill appreciation trajectory is derived from the inherent technology of the workplace.
- Valuable work skills do continue to appreciate with work experience but there is a small demand for workers at these higher levels compared with both the numbers of qualified tradespeople who fulfil the potential to do the job and the preponderance of higher skill jobs in non-trade areas which traditionally draw their labour pool from the ranks of qualified skilled tradespeople. Accordingly, many qualified tradespeople seeking higher wages will be attracted by higher-skilled and higher-paying jobs outside the trade.

In relation to the second type of reason, it is possible that:

- Valuable work skills do continue to appreciate with work experience but this value to employers is not reflected in wages paid. A poor nexus between wages and productivity may be due to industrial relations conventions or accepted pay relativity norms within the

[1] While it is also possible that high attrition is caused by a decline in absolute trade employment, we ignore this effect because high rates of attrition pre-date recent employment declines in the trades.

firm. The firm is only profit-maximising within the constraints of the institutions and customs in society. Were these forces to be removed, a profit-maximising firm would adopt a steeper wage-experience profile and accordingly keep many skilled tradespeople who currently leave.

- Valuable work skills will only continue to appreciate with experience if they are supplemented by complementary training. The difficulties found between parties in appropriating the benefits from training may lead to sub-optimal levels of post-trade training and thus an inefficient truncation of tradespeople's career paths.
- Not all qualified tradespeople have the potential to effectively undertake higher-skill, higher-paying jobs and the greater responsibility they imply. Even though openings may exist within the trade for higher skill jobs, many or some qualified tradespeople will be unsuitable candidates and accordingly are unlikely to advance beyond a certain career point.

It does not necessarily follow that the lack of career path or a levelling of wages over a person's life cycle will necessarily lead to attrition since the latter depends also on the earnings and non-pecuniary rewards from alternative job opportunities. Nonetheless, people facing a flat future career path may seek to increase their job variety through the uptake of jobs with different tasks but not necessarily better pay. Trade attrition may also occur if following a random event, trade workers are separated from the current job or employer and subsequently take a lesser-skilled job outside the trade. The lower are trade wages relative to other jobs, the more likely this transition will be.

There are several reasons why employers may prefer to hire unqualified tradespeople even when qualified out-of-trade workers are available.

- Available qualified labour may have skills in the wrong intra-trade group speciality.
- Qualified labour may be available in an inappropriate location and the relative wage differential (and prospective job tenure) is not large enough to induce re-location. In addition, insufficient labour market information due to poorly co-ordinated geographic data may result in poor matching.
- Some available qualified workers may not have the desirable unobservable characteristics, such as motivation, ability, experience, English skills, willingness to perform boring or dirty work, which some unqualified workers have.
- Unqualified workers may be prepared to work for lower wages.
- The job may only demand a limited sub-set of trade skills for which an experienced but unqualified or partially qualified worker may be as suitable as a qualified person. According to Shields (1995, p.239) apprenticeship in these trades '…is devoid of technical relevance and [is] designed to legitimate an entirely illusionary social division between "skilled" and "unskilled" work'.[2]
- There may be a path dependency in hiring. Employers who upgrade unqualified workers in time of absolute shortage will not subsequently downgrade these workers even though at some later time qualified tradespeople may become available. This asymmetry may arise either because unqualified workers have accumulated relevant experience during the lapse of time or because of the morale and administrative costs of firing or downgrading a worker.

The first two factors imply traditional labour market mismatch failure. The remaining reasons are consistent with either of two views: either many trade jobs do not require the full set of trade skills and accordingly lower level (or partial) training courses or mere learning-by-doing are required; alternatively, desirable but unobservable characteristics of some unqualified people more than compensates for their lack of training vis-à-vis the out-of-trade qualified

[2] This distinction between skilled and non-skilled jobs and job titles may also be influenced by the strategic position within the production process and that collective power of the affected workers. In short, the correspondence between objective skill and skilled status is not necessarily close.

men. However, it is also possible that employers would prefer these unqualified workers with more formal training than is currently the case.

It does not follow that hiring unqualified tradespeople is sub-optimal from either society's, the employers' or the employees' point of view. Whether more training should be provided depends on whether the additional benefits (higher productivity) of providing more formal trade training to these people outweighs the additional costs (course and supervision costs, lost wages). While it is relatively simple to theoretically measure the net benefits from additional training, it is neither clear–cut nor empirically easy to do so in practice. Accordingly, there are few rigorous cost-benefit studies that have tried to show that an extension of specific types of training will have economy-wide benefits.[3]

Labour market literature often avoids difficult accounting style studies by appealing to deductive economic theory which argues that the presence of either barriers to training or externalities is *prima facie* evidence of a sub-optimal outcome.[4] A 'barrier' is any obstruction that prevents willing people from undertaking training and may arise from ignorance or lack of information on behalf of the worker or employer, or from institutional and regulatory impediments. An externality refers to the inability of the party incurring the costs of training to appropriate (capture) the benefits.

By the 1970s, there were many recognised barriers to training in the trades area. These included the monopoly of apprenticeship over trade training, the legal exclusion of adult trainees, lack of accredited short off-the-job courses, lack of recognition for work experience gained during prior courses, and lack of flexibility (due to inappropriate incentive structures) in the type and number of courses taught by the trade schools. There were also the archetypal externality problems associated with most forms of workplace-related training. Employees may not want to bear the costs of training if they have few savings or cannot borrow and are possibly uncertain about their future careers. Employers may not want to pay for the costs of training if the worker is likely to leave the business. Neither party wants to shoulder the full costs of training due to the uncertain nature of the associated future benefits.

Many of the reforms in the trade training area in Australia since the 1970s have been based on the premise that these barriers and externalities have led to a sub-optimal level and mix of trade training. Some of the goals of trade training reforms have been to provide broader school-based training to enable tradespeople to adapt to broader work responsibilities, provide bridging and short accredited courses to incumbent employees, ease the rules which limit the number of apprentices a firm can employ, relax the rule on the types of firm which can employ an apprentice and recognise prior learning from other study and work experience.

History

Apprenticeship is a training scheme whereby the trainee contracts to work for an employer for a specified period in exchange for on-the-job training in a set of specialised skills. It dates from 2250 BC and is the oldest and possibly most widely recorded form of formal or regulated occupational training.[5] The distinctive feature of apprenticeship is the indenture or training contract which legally binds the parties together for a specified period. While variants of this basic model have existed over time and across civilisations, trade apprenticeship in Australia conforms to a fairly standard model. It generally involves contracts of 3-to-4 years' duration, where masters (employers) are required to pay a minimum wage to the apprentice according to their year of experience; time release is provided to allow the apprentice to attend off-the-job vocational education. Currently, both State governments and the Commonwealth Government pay employers a subsidy for each apprentice and regulate the conditions

[3] Training needs studies are not generally proper cost–benefit analyses.
[4] The argument is that without these two forms of 'market failure', enough training will be financed by either party to correctly balance out the costs and benefits of training.
[5] Bennett 1926; Douglas 1921; Lipson 1945; Johnson 1959; Phelps-Brown 1969

employers must meet in order to hire an apprentice as well as minimum educational requirements for apprentices. Limited powers for a third party to enforce the contract and completion rates in modern time[e] means that completion of the training term depends largely on goodwill between both parties.

As a mode of training skilled workers, apprenticeship has a proven endurance record provided certain conditions are maintained. It has chiefly survived in countries and occupations where the skills have remained an art rather than a science *and* government and guild regulations have promoted the indenture by law or moral exhortation.[f] It has proven to be a viable and economic way of gaining skills for occupations that have principally relied upon practical application and learning-by-doing forms of instruction. The main alternative is to acquire both manual and theoretic skills through full-time vocational schools (some European countries) or through work experience combined with night classes (USA).

Nevertheless, apprenticeship has not survived because of its abilities to provide the appropriate quantity of training. Specifically, there is nothing inherent in the institution of apprenticeship, as it has operated at any time before or during the twentieth century, to ensure that the numbers and types of apprentice completions are sufficient to meet employers' current or future skill needs. In fact, the institutional framework surrounding apprenticeship (government regulations, employer and unions practices) has been, on many occasions, actively used to limit the supply of trade skills to the economy even during times of chronic skill shortage (Smith 1776, p.133). These monopoly practices evolved out of medieval and Elizabethan views that it was in the interest of an orderly society to restrain competition by limiting supply.

Despite its educational advantages, apprenticeship is numerically inflexible. The numbers in training depend heavily on the level of production in the related industry, and research has found that the level of new indentures is fairly unresponsive to the level of shortage in the journeymen's labour market (see Webster 1983).[g] A higher training rate will only arise from a tight skilled labour market if apprentices and journeymen are substitutes. If they are complements, as has been mooted, then greater shortages of skilled labour will reduce the demand for new apprentices, all other things considered.

Most of the major industrial and building trades have exhibited signs of high rates of excess demand for labour in Australia during most of the second half of the twentieth century.[h] However, as labour market data improved it became apparent that this was not a straightforward case of skill shortage. Not only were there large numbers of unqualified people working in tradespeople's jobs, as one would expect given the vacancy statistics, but there were also large numbers of qualified tradespeople working in jobs which either did not require trade skills or appeared to involve lower level trade skills. At the time it was thought that lack of flexibility in the training institutions may be limiting the ability of qualified skilled workers to be placed, with some small additional training, in more appropriate jobs or for informally skilled workers to gain official trade recognition. The virtual monopoly which apprenticeship had over all forms of trade training in 'declared vocations' was regarded as a factor in this labour market malfunction or misallocation. Nevertheless, it was recognised that this mismatch between qualifications and occupations was unlikely to be totally attributable to a training or labour market malfunction. There are other circumstances causing skilled workers to prefer to work outside their trade, and employers to prefer to hire unqualified tradespeople, irrespective of the formal trade training system.

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[e] Employment cannot be enforced if either party is unwilling.

[f] It both penalised employers and apprentices who did not live out the contract period and it prohibited non-apprenticed juniors from working in the trade.

[g] A journeyman is a qualified tradesperson who is not yet a master.

[h] This is based on Commonwealth Employment Service vacancy and unemployment data from 1950 to 1980. These data are subject to a number of caveats but, most probably, convey a situation of excess relative demand for skilled labour (see Webster 1983, pp.43–61, for a discussion of these issues).

During the 1970s, some of the inflexible regulations such as the maximum age of the apprentice (23) and the ratio of apprentices to journeymen were eliminated. New State government initiatives such as pre-apprenticeship schemes, pre-vocational courses and group apprenticeship programs were piloted and ultimately extended. State government subsidies, and in 1973, the Commonwealth-funded National Apprenticeship Assistance Scheme (NAAS), later to be superseded in 1977 by the Commonwealth Rebate for Apprentices Full-time Training scheme (CRAFT) were introduced. Following the Kirby (1985) report recommendations, most States changed the assessment system for apprenticeship from time-serving towards competency-based training. Most of these changes appear to have increased the numbers of new apprentices and accordingly the numbers of (young) school leavers who were able to obtain full trade qualifications. The subject of adult training was not central to the debate at the time.

There have been numerous recommendations to liberalise the skilled training market to include, among other things, non-apprentice based routes to trade status. Formally upgraded 'dilutees'[10] in the metal and electrical trades were permitted during the Second World War as an emergency measure, and although this scheme was later abolished, the idea remained in the public arena. While the legislation which was enacted to formally recognise dilutees still exists (the *Tradesmen's rights regulations act 1946*), there has been no supportive education, training, government, employer or union institutions to make it an effective source of recognised adult training.[11] During the 1960s the idea of supplementary adult trade training for adults was discussed in several forums but was firmly opposed by unions, and in Victoria, by the Apprenticeship Commission (Pead 1981). The Cochrane Inquiry into Labour Market Training repeated these calls for an effective system of adult training but was also duly ignored.

It was not until the establishment of the Structural Efficiency Principle at the (August) 1988 National Wage Case that an institutional framework and an incentive structure was formally created to take these ideas beyond neglected recommendations.[12] A major aim of the reforms was to improve the utilisation of workers' skills and to smooth the skill development process. Existing classification structures often prevented experienced production workers from gaining a formal trade qualification without conforming to the school leaver training path.[13] Under award restructuring, pathways to enable workers to progress from the lowest skill level to the highest within industry were meant to be established (Dawkins 1989; Morris 1989; Timo 1989). The way was open for workplace or industry negotiations to embrace issues such as articulated programs for skill acquisition, the elimination of narrow occupational demarcations and the creation of a process for recognition of prior learning (RPL) through other forms of training or experience.

Since then, there has been a progressive move to make the training system consistent across States and Territories. In 1992, the Commonwealth Government introduced legislation to develop and implement a system embracing the objectives, planning processes, curriculum, competency levels, assessment, registration, credit transfers, recognition for prior learning, and accreditation of vocational training and the registration of both government and non-government providers. For constitutional reasons, its realisation depends on the co-operation of the States and Territories.[14] In 1998, the dual traineeship and apprenticeship system was collapsed into a 'New Apprenticeship' system and a six-tier certificate level course and accreditation system (the Australian Qualifications Framework [AQF]) was introduced. Since 1994, sub-trade level courses (AQF II) and school apprenticeships[15] have been offered in some of the proclaimed or declared trades/vocations.

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[10] Formally recognised adults who undertook intensive training during the Second World War.
[11] It remains primarily a vehicle of recognition for men with overseas or defence force qualifications.
[12] A major stimulus for these changes arose from Hancock (1985) and ACTU/TDC (1987).
[13] Parliament of the Commonwealth of Australia 1989, p.7
[14] Mitchell et al. 1999, p.47).
[15] According to Misko 1999, nearly half of secondary schools provide vocational education in 1996.

Outline of paper

The analysis contained in the body of this study has used secondary data sources to detect trends over time in training rates, levels of attrition and amount of upgrading. The employed method of analysis is not definitive, but rather indicative. It is not possible to clearly distinguish whether a specific policy change was appropriate but has not been fully effective because it is a necessary but not sufficient condition, or it was fully functional but counter-vailing external forces within the labour market have concealed its effects, or, it was simply an inappropriate policy. By combining gross trends and comparisons in the data with deductive reasoning, the analysis can only *suggest* causal relationships in the labour market.

Chapter 2 presents an overview of tradesmen, both qualified and unqualified, in the metal, building, electrical and vehicle trades between 1971 and 1996. It gives a perspective of how many unqualified tradesmen have been working in each trade area, what sorts of jobs qualified tradesmen have taken and possible reasons for high levels of unqualified tradesmen. Because the jobs under investigation are overwhelmingly taken by men, the data have been limited where possible to men only.

Chapter 3 reviews both legislative rules and procedural behaviours which have inhibited or promoted the formal training and recognition of unqualified adult tradespeople.

Chapter 4 examines the effect of training market reforms over the past 10 to 15 years on the career progression of experienced, but not apprenticed, tradespeople in the main trades. While this study's focus is on estimating the effect of award restructuring, two other policy changes during this period that may also account for any observed changes in the data, are examined. First, from 1992 to 1997, the Commonwealth Government significantly increased funding for vocational education and training (VET), following the establishment of the Australian National Training Authority (ANTA). Prior to this time the Commonwealth contributed very little recurrent funding, although it did provide some capital funding. Second, from 1990 to 1996 the Commonwealth Government required all medium-to-large firms to spend a specified proportion of its payroll on employee training (Training Guarantee). The Training Guarantee may have directly affected the numbers in training in each enterprise. It may have also indirectly affected the training culture of the workplace.

In seeking information on why the trades have high attrition rates, a model of the comparative level of job satisfaction for tradespeople has been estimated in chapter 5.

Chapter 6 looks at the role of post-trade training in lowering attrition of qualified tradespeople from the trade.

The conclusion of the report, including recommendations for further research, are contained in chapter 7.

It has been necessary to use data which span a period of about 20 years because of the type of issues under investigation. Altering employers' patterns of training and employees' career aspirations is not a light undertaking that can be accomplished within a few years, especially given the fragmented and dispersed nature of the manufacturing, building and automotive industries. To assess the effect of policy and institutional changes instigated during the late 1980s, a lengthy post-change review period of at least ten years is required. Accordingly, it is premature at this time to undertake a labour market assessment of the New Apprenticeship initiatives that began nationally in January 1998.

The long time span has involved some changes of nomenclature, especially in relation to the level of training and skill. To minimise clumsy multiple terms, it is assumed that the following terms are associated with three major levels of skill and qualification:

- Unskilled, semi-skilled, one-year vocational qualification, basic vocational certificate and AQF I and II refer to skill or qualification levels below the old trade level.

- Skilled, trade, apprenticeship, skilled vocational qualification and AQF III refer to skills and qualifications at the old trade level.
- Post-trade, technical qualification and AQF IV refer to skill and qualifications above this level.

The term 'apprenticeship' in this report is considerably narrower than current VET sector usage and refers to only the traditional three to four year apprenticeship in the manual trades.

2 Labour in the skilled trades 1971–96

Introduction

Despite strong indicators of high vacancy rates for most types of skilled tradespeople throughout the 1950s, 1960s and 1970s, the emerging labour market data of the 1970s revealed that there were also large numbers of qualified tradespeople working in jobs that required skills well below trade level. This situation operated simultaneously with very high levels of unqualified people working as tradespeople.

This chapter gives a perspective of the proportions of *men* working in the four selected trades who possessed (at the time) relevant qualifications and the occupational destination of men who were qualified in the trades. In addition, there is a discussion of why the levels of unqualified tradespeople is, and has been so high. Detailed labour market data from 1971 to 1996 censuses of population and housing have been employed. These data only refer to men's highest qualification and the trade qualified category excludes men who have, in addition to a trade certificate, technician's certificates, diplomas or degrees. Australian Bureau of Statistics (ABS) data were used to inform tables 1–9.[16] Additional data has been supplied from the Youth-in-Transition (YIT) panel surveys together with a number of ABS surveys (tables 10–29).

Metal trades[17]

As shown in, table 1, there were about 95 000 qualified metal tradesmen working in a non-trade position which either did not obviously require trade skills (clerical and sales jobs) or required lower sub-trade skills (semi-skilled and unskilled manual jobs and service jobs) during 1971.[18] At the same time, there were about 107 000 unqualified metal tradesmen. By 1991, the numbers of qualified tradesmen working below their trade had fallen to about 66 000 and the number of unqualified metal tradesmen had fallen to 49 000.

The distribution of working metal tradesmen according to their qualifications for 1971, 1981, 1991 and 1996 are presented in tables 2 to 5. During 1971, 48.7% of all men working as a metal tradesman had formal metal trade qualifications. This proportion fell between 1971 and 1981 but rose steadily from 45.8% in 1981 to 63.0% in 1996. Simultaneously, the proportion of metal tradesmen who had no qualifications fell from 40.4% in 1971 to 23.3% in 1996. Between 1981 and 1996, there was also a growth in tradesmen with higher qualifications, possibly technician's certificates and a modest fall in the number with sub-trade level qualifications.

During 1971, only 54.0% of qualified metal tradesmen were working in the metal or vehicle trades as indicated in table 6. Five per cent were employed as clerks or salespeople and a

[16] According to the ABS 1993 survey of tradespeople, 14.6% of qualified tradespeople and 13.4% of trades qualified people working in the trade had either a degree or diploma as well as a trade certificate (ABS cat.6243.0, table 1.6).

[17] Due to the way the original data have been categorised, motor mechanics are not included in the metal trade qualifications but are included in the vehicle trade occupations.

[18] According to ABS (1993), over two-thirds of qualified tradespeople working in clerical, sales, plant and machining and labouring etc. jobs only used their trade skills occasionally or never. The corresponding percentage for managers etc. and professionals was about 40.

further 26.3% were undertaking either semi-skilled or unskilled manual or lower skilled service work. The percentage working in a semi-skilled, unskilled or service job fell consistently over the 1971 to 1996 period from 26.3% to 17.9%. However, most of this reduction in sub-trade work has not been to the direct benefit of strictly defined trade jobs. The data suggests that, over time, the proportion of qualified metal tradesmen who are working in their trade group has actually fallen. It rose marginally to 67.2% in 1981 but fell to 43.1% in 1991 (table 8). Evidence from 1996 suggests that the decline since 1971 has continued. Metal tradesmen are not separately identified in the 1996 data but the proportion of men qualified in the metal, electrical and vehicles trades who were working in one of these trades was only 44.1% (table 9).

Where are these qualified metal tradesmen going? Clearly it is not into lower-skilled sub-trades. Most of the growth in jobs was in the managerial, administrator, professional and technical jobs. Between 1971 and 1996 the percentage of qualified metal tradesmen working in these 'higher' skill jobs rose from 11.9% to 20.3%.[19] However, given the changing structure of employment over this period across the whole economy, this growth is less remarkable. The proportion of these higher skilled jobs held by men with no post-school qualifications[20] rose from 9.9% in 1971 to 19.5% in 1996.

Together these data suggest a consolidation and tightening of the metal trades labour market and careers for metal tradesmen. Over the 25-year period from 1971 to 1996, the apparent wastage of qualified men into either lower standard work or unrelated work appears to have fallen dramatically. In addition, a metal trade qualification seems to be valid entrée into the expanding higher technical and managerial job sector.[21] Furthermore, the proportion of trade jobs that are filled with unqualified men has fallen considerably.

Building trades

As shown in table 1, during 1971 there were about 85 000 qualified building tradesmen working in a non-trade position and about 87 000 unqualified tradesmen. By 1996, the numbers of qualified tradesmen working below their trade[22] fell by about a third to 30 000 but the number of unqualified building tradesmen fell less and stood at 64 000.

Similar to the metal trades, tables 2, 3, 4 and 5 present the distribution of employed building tradesmen according to their qualifications. By 1971, 56.0% of all men working as a building tradesman had formal trade building qualifications. This proportion remained fairly static from 51.7% in 1981 to 53.3% in 1996. Simultaneously, the proportion of building tradesmen who had no qualifications exhibited a small decline from 38.0% in 1971 to 31.3% in 1996. Between 1981 and 1996, there was also a growth in tradesmen with higher qualifications, possibly technician's certificates and a modest fall in the number with sub-trade level qualifications. However, the absolute percentages are very low (being below 3% in 1996).

During 1971, only 53.3% of qualified building tradesmen were working in the building trades as indicated in table 6. Employed as clerks or salespeople were 3.8%, and a further 31.0% were undertaking either semi-skilled or unskilled manual or lower skilled service work. The percentage working in a semi-skilled, unskilled or service job fell consistently over the 1971 to 1996 period from 31.0% to 14.5% (tables 5 to 9). Over time the proportion of qualified building tradesmen who are working in their trade group has shown little trend to rise or fall. It rose marginally to 58.3% in 1981, but fell to 54.3% in 1996.

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[19] Data for 1996 include the smaller electrical and vehicle trades as well. However the percentage of metal qualified men working in these higher skilled jobs in 1991 was 18.8% (table 8).

[20] Including those who did not answer the question.

[21] These proportions are likely to be an understatement as they exclude trade qualified men who have higher-level qualifications.

[22] Below trade refers to qualified men working in either clerical, sales, semi-skilled, unskilled or lower service work.

Most of the change in the employment structure of qualified men has been in the managerial, administrator, professional and technical jobs. Between 1971 and 1996 the percentage of qualified building tradesmen working in these 'higher' skill jobs rose from 9.5% to 21.0%.[23]

These data suggest less consolidation of the building trades labour market than for the metal trades. The proportion of working tradesmen who are fully qualified appears to have changed only to a small extent over the 25-year period under consideration. However, similar to the metal trades, the wastage of qualified men into either lower standard work or unrelated work appears to have fallen dramatically to the benefit of extended career paths into the technical and managerial job sector.[24]

Electrical trades

Table 1 reveals that in 1971 there were about 18 000 qualified electrical tradesmen working in a non-trade position and about 50 000 unqualified tradesmen. By 1991, the number of qualified tradesmen working below their trade[25] grew to 24 000 but the number of unqualified electrical tradesmen fell to 38 000.

Referring again to tables 2 to 5, by 1971 only 40.0% of all men working as an electrical tradesman had formal electrical trade qualifications. This proportion rose consistently from 42.8% in 1981 to 55.0% in 1991. Simultaneously, the proportion of electrical tradesmen who had no qualifications declined from 38.6% in 1971 to 28.1% in 1991. Between 1981 and 1991, there was also growth in the number of tradesmen with higher qualifications, possibly technician's certificates and a small fall in the number with sub-trade level qualifications, however the absolute percentages of the latter are very modest (being below 4% in 1991).

During 1971, 61.5% of qualified electrical tradesmen were working in the electrical trades, 4.8% were employed as clerks or salespeople and a further 17.3% were undertaking either semi-skilled or unskilled manual or lower skilled service work (table 6). The percentage working in a semi-skilled, unskilled or service job fell consistently over the 1971 to 1991 period from 17.4% to 9.7%. Over time the proportion of qualified electrical tradesmen who are working in their trade group has shown a small decline. It rose between 1971 to 1981 but fell to 51.2 in 1991.

Most of the change in the employment structure of qualified men has been in the managerial, administrator, professional and technical jobs. Between 1971 and 1991 the percentage of qualified electrical tradesmen working in these 'higher' skill jobs rose from 10.7% to 26.8%.

Similar to the metal and building trades, there has been a rise in the percentage of working tradesmen who have qualifications over the past 20 to 25 years. There has also been a decline in the leakage rate of trade qualified men into less skilled or non-trade related work as they take their share of jobs in the burgeoning job market for managerial, technical and professional skills.[26]

[23] Data for 1996 include the smaller electrical and vehicle trades as well. However the percentage of metal qualified men working in these higher skilled jobs in 1991 was 18.8% (table 8).
[24] These proportions are likely to be an understatement as they exclude trade qualified men who have higher level qualifications.
[25] Below trade refers to qualified men working in either clerical, sales, semi-skilled, unskilled or lower service work.
[26] These proportions are likely to be an understatement as they exclude trade qualified men who have higher level qualifications.

Vehicle trades[27]

Table 1 shows that by 1981 there were about 8000 qualified vehicle tradesmen working in a below-trade position and about 26 000 unqualified tradesmen. By 1991, the number of qualified tradesmen in below-trade jobs[28] had risen dramatically to 26 000 and by 1996 the number of unqualified vehicle tradesmen had risen less dramatically to 30 000. The dramatic rise in the number of qualified vehicle tradesmen working below their trade is possibly due to the heavy drink-driving and speeding campaigns undertaken by State governments and subsequent decline in panel beating work over this period.

By 1971, 55.6% of all men working as a vehicle tradesman had formal vehicle, metal or electrical trade qualifications (table 2).[29] Between 1971 and 1996 this proportion rose to 62.5%. Simultaneously, the proportion of vehicle tradesmen who had no qualifications declined from 40.0% in 1971 to 25.8% in 1996 (see tables 2 to 5). Between 1971 and 1996, there was also a slight growth in tradesmen with higher qualifications, possibly technician's certificates and a slight fall in the number with sub-trade level qualifications; however the absolute percentages of the latter are very modest (being below 2% in 1991).

Table 6 indicates that during 1981, 45.5% of qualified vehicle tradesmen were working in the vehicle trades, 7.2% were employed as clerks or salespeople and a further 21.9% were undertaking either semi-skilled or unskilled manual or lower skilled service work. The percentage working in a semi-skilled, unskilled or service job remained unchanged over the 1981 to 1991 period. Over the decade 1981 to 1991, the proportion of qualified vehicle tradesmen who are working in their trade group remained static at about 52%.

In keeping with the other large trades, there were rises in the proportion of vehicle qualified tradesmen in the higher skilled occupations.

Similar to the other three trades, there has been a rise in the percentage of working tradesmen who are trade qualified over the past 20 to 25 years. During the period for which disaggregated data exist (1981 to 1991), there has been no evidence of a decline in the leakage rate of vehicle trade qualified men into less skilled or non-trade related work, unlike the other trades.[30]

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[27] Due the way the original data have been categorised, motor mechanics are included in the metal trade qualifications but are included in the vehicle trade occupations.

[28] Out-of-trade refers to qualified men working in either clerical, sales, semi-skilled, unskilled or lower service work.

[29] It was not possible to separateiy identify vehicle trade qualifications in either 1971 or 1996.

[30] These proportions are likely to be an understatement as they exclude trade qualified men who have higher level qualifications.

Table 1: Approximate number of men in the metal, building, electrical and vehicle trades[a]

Trade qualification and employment category[a]	1971	1981	1991	1996
Metal				
Employed tradesmen (excludes motor mechanics)	265 000	260 000	180 000	178 000
Qualified (metal trade) employed tradesmen (excludes motor mechanics)	129 000	119 000	100 000	Na
Unqualified employed tradesmen (excludes motor mechanics)	107 000	98 000	49 000	42 000
Qualified (metal trade) but employed in below trade position[b]	95 000	74 000	66 000	Na
Building				
Employed tradesmen	229 000	221 000	190 000	207 000
Qualified (building trade) employed tradesmen	128 000	114 000	104 000	110 000
Unqualified employed tradesmen	87 000	82 000	61 000	64 000
Qualified (building trade) but in below trade position[b]	85 000	56 000	37 000	30 000
Electrical				
Employed tradesmen	129 000	135 000	112 000	140 000
Qualified (electrical trade) employed tradesmen	52 000	58 000	59 000	Na
Unqualified employed tradesmen	50 000	45 000	38 000	34 000
Qualified (electrical trade) but in below trade position[b]	18 000	15 000	24 000	Na
Vehicle				
Employed tradesmen (includes motor mechanics)	Na	85 000	112 000	115 000
Qualified (vehicle or metal trade) employed tradesmen	Na	46 000	59 000	Na
Unqualified employed tradesmen	Na	26 000	32 000	30 000
Qualified (vehicle trade only) but in below trade position[b]	Na	8 000	38 000	Na

Notes:

a. Table excludes employed tradesmen who held other types of qualifications.

b. Employed but not in a trade, managerial, administrative, professional or technical position.

Na – not available.

Source:

1971 Census of Population and Housing, Matrix tape sp119, 1981 Census of Population and Housing, Matrix tape m087, 1991 and 1996 Census of Population and Housing, 1% sample file

Table 2: Percentage distribution of employed men across post-school qualifications categories by occupation, 1971

Occupation	Post-school qualifications							
	Trade certificate				Higher quals	Lower quals or level not given	No quals or not stated	Total
	Metal (incl. motor mechanics)	*Building*	*Electrical*	*Other (incl. vehicle)*				
Tradesmen								
Metal	48.7	1.3	1.4	2.9	4.8	0.4	40.5	100.0
Building	1.5	56.0	0.2	2.0	1.8	0.4	38.0	100.0
Vehicle (incl. motor mechanics)	42.5	1.4	0.6	12.5	2.6	0.4	40.0	100.0
Electrical	2.9	0.5	40.0	0.6	16.3	1.0	38.6	100.0
Other	0.8	0.7	0.1	48.8	1.0	0.4	48.2	100.0
Administrators, managers	7.3	5.7	1.6	4.1	17.8	2.1	61.3	100.0
Professionals, technicians	3.7	1.5	1.1	1.2	59.3	1.8	31.5	100.0
Clerical, salespeople	2.9	1.7	0.8	2.0	7.6	1.7	83.2	100.0
Semi-skilled and unskilled manual, service workers	3.4	3.2	0.6	2.9	3.2	0.9	86.0	100.0
Total	**6.9**	**5.5**	**1.9**	**3.9**	**9.8**	**1.1**	**70.9**	100.0

Source:
1971 Census of Population and Housing, Matrix tape sp119

Table 3: Percentage distribution of employed men across post-school qualifications categories by occupation, 1981

Occupation	Post-school qualifications								
	Trade certificate					Higher quals	Lower quals or level not given	No quals or not stated	Total
	Metal (incl. motor mechanics)	*Building*	*Vehicle*	*Electrical*	*Other (exc. vehicle)*				
Tradesmen									
Metal	45.8	0.9	0.8	1.2	4.0	0.9	8.5	37.8	100.0
Building	2.0	51.7	0.6	0.2	4.7	0.6	3.2	37.0	100.0
Vehicle (incl. motor mechanics)	38.3	1.1	15.4	0.4	8.7	0.3	5.0	30.9	100.0
Electrical	1.7	0.6	0.2	42.8	0.9	0.9	19.5	33.4	100.0
Other	0.7	1.9	0.8	0.1	44.2	0.6	2.8	48.8	100.0
Administrators, managers	6.2	4.7	0.6	1.6	4.0	16.6	11.8	54.5	100.0
Professionals, technicians	2.9	1.3	0.2	0.9	1.9	54.0	16.0	22.8	100.0
Clerical, salespeople	3.1	1.5	0.4	0.8	2.2	6.8	7.7	77.5	100.0
Semi-skilled and unskilled manual, service workers	4.1	3.4	0.5	0.7	4.3	1.6	3.8	81.6	100.0
Total	**7.4**	**5.5**	**0.8**	**2.4**	**4.7**	**11.3**	**7.8**	**60.1**	100.0

Source:
1981 Census of Population and Housing, Matrix tape m087

Table 4: Percentage distribution of employed men across post-school qualifications categories by occupation, 1991

Occupation	Post-school qualifications								
	Trade certificate					Higher quals	Lower quals or level not given	No quals or not stated	Total
	Metal (incl. motor mechanics)	*Building*	*Vehicle*	*Electrical*	*Other (exc. vehicle)*				
Tradesmen									
Metal	56.1	0.9	3.1	2.0	1.4	2.2	7.1	27.2	100.0
Building	2.4	54.4	0.7	0.4	1.1	0.9	8.3	31.9	100.0
Vehicle (incl. motor mechanics)	7.9	0.9	52.9	1.0	1.3	1.0	6.8	28.2	100.0
Electrical	3.0	0.7	0.7	55.0	0.4	3.3	8.8	28.1	100.0
Other	8.9	3.4	0.8	1.0	25.8	3.2	10.6	46.2	100.0
Administrators, managers	4.9	5.6	2.5	3.0	3.5	25.9	12.8	41.8	100.0
Professionals, technicians	3.3	2.1	0.8	3.2	1.9	53.0	11.9	23.8	100.0
Clerical, salespeople	3.5	1.3	2.0	1.7	3.3	10.4	10.0	67.8	100.0
Semi-skilled and unskilled manual, service workers	4.2	2.5	2.3	1.2	3.2	3.2	10.6	72.8	100.0
Total	**6.7**	**5.1**	**3.3**	**3.8**	**4.0**	**16.8**	**10.6**	**49.7**	100.0

Source:
1991 Census of Population and Housing, 1% sample file

Table 5: Percentage distribution of employed men across post-school qualifications categories by occupation, 1996

Occupation	Post-school qualifications						
	Trade certificate			Higher quals	Lower quals or level not given	No quals or not stated	Total
	Metal, vehicle & electrical	*Building*	*Other*				
Tradesmen							
Metal	63.0	0.8	1.8	4.4	6.8	23.3	100.0
Building	3.7	53.3	1.3	2.4	8.2	31.1	100.0
Vehicle (incl. motor mechanics)	62.5	0.6	1.2	1.8	8.0	25.8	100.0
Electrical	60.0	0.8	1.8	5.9	7.2	24.3	100.0
Other	19.0	3.2	16.0	5.4	9.7	46.6	100.0
Administrators, managers	11.4	5.3	4.4	30.7	9.3	38.9	100.0
Professionals, technicians	7.3	1.6	1.5	62.8	7.7	19.1	100.0
Clerical, salespeople	8.3	1.5	3.0	18.1	9.1	60.1	100.0
Semi-skilled and unskilled manual, service workers	8.8	2.4	2.7	5.4	9.1	71.5	100.0
Total	**14.7**	**5.0**	**3.4**	**21.7**	**8.7**	**46.6**	**100.0**

Source:
1996 Census of Population and Housing, 1% sample file

Table 6: Percentage distribution of employed men across occupations by post-school qualification, 1971

Occupation	Post-school qualifications							
	Trade certificate				Higher quals	Lower quals or level not given	No quals or not stated	Total
	Metal (incl. motor mechanics)	*Building*	*Electrical*	*Other (incl. vehicle)*				
Tradesmen								
Metal	42.8	1.4	4.4	4.5	2.9	2.5	3.5	6.1
Building	1.2	53.3	0.6	2.7	1.0	1.9	2.8	5.2
Vehicle (incl. motor mechanics)	11.2	0.5	0.6	5.9	0.5	0.6	1.0	1.8
Electrical	1.2	0.3	61.5	0.5	4.9	2.8	1.6	2.9
Other	0.3	0.3	0.1	30.4	0.3	1.0	1.6	2.4
Administrators, managers	7.4	7.3	5.8	7.5	12.7	14.2	6.1	7.0
Professionals, technicians	4.5	2.2	4.9	2.5	51.2	14.5	3.8	8.5
Clerical, salespeople	5.0	3.8	4.8	6.1	9.2	18.7	13.9	11.9
Semi-skilled and unskilled manual, service workers	26.3	31.0	17.3	40.0	17.4	43.8	65.6	54.1
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source:
1971 Census of Population and Housing, Matrix tape sp119

Table 7: Percentage distribution of employed men across occupations by post-school qualifications, 1981

Occupation	Post-school qualifications								
	Trade certificate					Higher quals	Lower quals or level not given	No quals or not stated	Total
	Metal (incl. motor mechanics)	*Building*	*Vehicle*	*Electrical*	*Other*				
Tradesmen									
Metal	44.9	1.3	7.0	3.6	6.2	0.6	8.0	4.6	7.3
Building	1.6	58.3	4.6	0.6	6.3	0.3	2.6	3.8	6.2
Vehicle (incl. motor mechanics)	12.3	0.5	45.5	0.4	4.4	0.1	1.5	1.2	2.4
Electrical	0.8	0.4	0.9	66.8	0.7	0.3	9.5	2.1	3.8
Other	0.3	1.0	2.9	0.2	26.7	0.2	1.0	2.3	2.8
Administrators, managers	6.3	6.5	6.0	4.9	6.5	11.1	11.4	6.9	7.6
Professionals, technicians	5.9	3.5	4.0	5.9	6.0	72.3	31.1	5.7	15.1
Clerical, salespeople	6.5	4.3	7.2	5.6	7.6	9.6	15.8	20.5	15.9
Semi-skilled and unskilled manual, service workers	21.3	24.3	21.9	12.0	35.6	5.6	19.2	53.0	39.0
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source:
1981 Census of Population and Housing, Matrix tape m087

Table 8: Percentage distribution of employed men across occupations by post-school qualifications, 1991

Occupation	Post-school qualifications								
	Trade certificate					Higher quals	Lower quals or level not given	No quals or not stated	Total
	Metal (incl. motor mechanics)	*Building*	*Vehicle*	*Electrical*	*Other (exc. vehicle)*				
Tradesmen									
Metal	39.6	0.8	4.5	2.5	1.6	0.6	3.2	2.6	4.7
Building	1.8	53.5	1.0	0.6	1.3	0.3	3.9	3.2	5.0
Vehicle (incl. motor mechanics)	3.5	0.5	47.5	0.8	0.9	0.2	1.9	1.7	2.9
Electrical	1.6	0.5	0.8	51.2	0.4	0.7	3.0	2.0	3.6
Other	8.2	4.1	1.4	1.6	39.7	1.2	6.3	5.8	6.2
Administrators, managers	9.1	13.7	9.6	9.9	10.6	19.1	15.0	10.5	12.4
Professionals, technicians	9.7	8.1	4.8	16.9	9.5	62.6	22.4	9.5	19.9
Clerical, salespeople	8.1	4.1	9.6	6.9	12.8	9.8	14.9	21.5	15.7
Semi-skilled and unskilled manual, service workers	18.3	14.7	20.7	9.7	23.1	5.6	29.5	43.3	29.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source:
1991 Census of Population and Housing, 1% sample file

Table 9: Percentage distribution of employed men across occupations by post-school qualifications, 1996

Occupation	Post-school qualifications						
	Trade certificate			Higher quals	Lower quals or level not given	No quals or not stated	Total
	Metal, vehicle & electrical	*Building*	*Other*				
Tradesmen							
Metal	18.6	0.7	2.3	0.9	3.4	2.2	4.3
Building	1.3	54.3	2.0	0.6	4.8	3.4	5.0
Vehicle (incl. Motor mechanics)	11.8	0.3	1.0	0.2	2.6	1.5	2.8
Electrical	13.7	0.5	1.8	0.9	2.8	1.8	3.4
Other	7.7	3.9	28.5	1.5	6.7	6.0	6.0
Administrators, managers	10.7	15.0	18.0	19.7	14.9	11.6	13.9
Professionals, technicians	9.6	6.0	8.7	55.8	17.2	7.9	19.3
Clerical, salespeople	8.7	4.7	13.7	13.0	16.4	20.1	15.6
Semi-skilled and unskilled manual, service workers	17.9	14.5	24.0	7.4	31.3	45.6	29.7
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source:
1996 Census of Population and Housing, 1% sample file

Occupational mobility over the early career

The above series of cross-sectional data suggests that over their life cycle, many tradesmen are leaving their trade either for 'higher' managerial positions or for less skilled work. ABS data were used to make this analysis. Longitudinal data trace the work history of the same people and thus complement the census data.

Data from the Youth-in-Transition longitudinal survey[31] are examined in the analysis which follows. Two cohorts of young men from this survey are utilised: those born in 1961 and those born in 1970. The data for the 1961 cohort have occupational data from 1980 to 1992 coded to the Commonwealth Classification of Labour Occupation (CCLO) classification[32], and from 1989 to 1994 using the more recent Australian Standard Classification of Occupations (ASCO). The data for the 1970 cohort have occupational data coded to the CCLO classification from 1985 to 1991, and again to the ASCO classification from 1989 to 1994.

Unfortunately, for comparison purposes this gives few years when the two cohorts are classified under the same occupational groupings and at the same age, namely CCLO classification for ages 18 to 21. Further, it is quite difficult to clearly distinguish tradespersons under the CCLO classification. They are grouped together in a major category of 'tradesmen, production-process workers and labourers', but it is clear that many of the sub-categories listed may or may not be undertaken by a qualified tradesperson, depending upon the specific workplace context. For example, many 'machinist' positions are highly skilled and would require a qualified tradesperson, while others are very low-skilled, repetitive jobs requiring no formal qualification. The categories have been redefined for this study by separating out occupations which are most unlikely to require qualified tradespersons, such as the various trade assistants, labourers and factory hands, into a category of 'non-trade production-process workers and labourers', but this does not have a large impact on the overall figures. The ASCO coding, introduced into Australia in 1986, is far more definitive in distinguishing between tradespersons' occupations and other related workers.

All qualification groups

Tables 10 and 11 show the main changes in the occupational status of males from all qualification groups over their early life cycle. For both cohorts there was an initial rapid rise in the proportion working in professional and technical positions, and the increase in the proportion working in managerial or executive positions. Movement into professional and technical positions by the 1961 cohort levels off from around 30 years of age, while the movement into managerial and administrative positions continues beyond that age (based on the ASCO classifications). For the years in which the cohorts can be compared at the same age (19–21) and under the same occupational coding, the main difference is the higher proportion of the 1970 cohort who worked in clerical and sales positions at the same age.

[31] Detail of this data set are provide in appendix B.

[32] An occupation variable is available for 1979, but it is unclear how it is coded. The variable ranges from 1 to 16, with category 9 being the largest group.

Table 10: Occupation in selected years, all qualification groups, males, 1961 cohort

a. CCLO major categories: aged 19–30 (selected years)

Occupation	Age 19 (1980)	Age 21 (1982)	Age 23 (1984)	Age 26 (1987)	Age 30 (1991)
Professional & technical	5.1	8.7	14.3	20.1	24.5
Admin., exec. & managerial	1.1	2.8	2.6	3.9	9.1
Clerical & sales	11.5	12.0	16.6	14.8	13.9
Farming & related workers	5.2	6.5	6.7	6.6	6.1
Mining & related workers	0.4	0.7	0.5	1.0	1.1
Transport/comm. workers	1.8	3.6	3.2	4.3	4.8
Trades, production process workers	24.2	26.4	24.9	25.2	20.6
Non-trade process and labourers	8.1	10.5	9.3	7.4	7.4
Service, sport, rec. workers	4.0	6.0	5.7	7.0	5.1
Members of armed forces	1.3	2.4	2.9	0.5	0.4
Not applic./inadequately desc.	37.4	20.3	13.3	9.2	7.1
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
(n)	(2095)	(1764)	(1291)	(1494)	(1111)

b. ASCO major categories: aged 28, 31 and 33

ASCO major category	Age 28 (1989)	Age 31 (1992)	Age 33 (1994)
Managers and administrators	11.2	13.5	18.2
Professionals	19.3	20.2	19.4
Para-professionals	8.5	8.9	9.4
Tradespersons	21.5	21.1	18.3
Clerks	8.3	5.7	5.1
Sales and personal service	7.3	6.0	5.5
Plant & machine operators/drivers	7.2	9.4	7.2
Labourers and related	9.3	7.4	8.4
Not applicable	7.5	7.8	8.5
Total	**100.0**	**100.0**	**100.0**
(n)	(1139)	(1083)	(1064)

Source:
Youth-in-Transition panel survey, 1961 cohort, Australian Council for Educational Research

Table 11: Occupation in selected years, all qualification groups, males, 1970 cohort

a. CCLO major categories: aged 19–21

Occupation	Age 19 (1989)	Age 20 (1990)	Age 21 (1991)
Professional & technical	3.0	5.3	8.2
Admin., exec. & managerial	0.6	0.4	0.9
Clerical & sales	19.2	22.1	20.4
Farming & related workers	4.1	4.7	4.3
Mining & related workers	0.5	0.7	0.4
Transport/comm. workers	2.1	2.6	3.1
Trades, production process workers	23.0	22.6	20.5
Non-trade process and labourers	6.9	5.9	6.5
Service, sport, rec. workers	10.1	11.1	10.2
Members of armed forces	1.0	1.4	0.3
Not applic./inadequately desc.	29.5	23.1	25.3
Total	**100.0**	**100.0**	**100.0**
(n)	(808)	(696)	(771)

b. ASCO major categories: aged 19, 22 and 24.

ASCO major category	Age 19 (1989)	Age 22 (1992)	Age 24 (1994)
Managers and administrators	2.5	2.4	6.5
Professionals	2.0	11.5	18.5
Para-professionals	4.3	8.1	7.5
Tradespersons	21.4	19.2	18.0
Clerks	8.0	9.8	9.5
Sales and personal service	14.6	14.4	9.5
Plant & machine operators/drivers	5.1	4.6	4.4
Labourers and related	13.6	9.0	9.9
Not applicable	28.5	20.9	16.4
Total	**100.0**	**100.0**	**100.0**
(n)	(808)	(702)	(666)

Source:
Youth-in-Transition panel survey, 1970 cohort, Australian Council for Educational Research

Trade qualification groups

Table 12 presents a picture of the career paths of men in the 1961 cohort who gained a trade qualification from the ages of 19 to 33 years. A pattern similar to all men is evident in relation to the movement into managerial and administrative positions. The most salient feature of the data, however, is the apparent attrition rate out of occupations classified as a trade. Using our refined CCLO classification of 'trades, production process workers', the proportion falls from around 85 percent at age 19, when most of those concerned would actually have been undertaking their apprenticeships, down to just over half by age 30. The ASCO classifications available from 1989 show the trend continuing. From just under 60% when the cohort was 28, this proportion falls to 43.3% over the ensuing five years. The main occupation destinations are managers and administrators, para-professionals, labourers and related workers and plant

and machine operators. The CCLO data also suggest significant movement into clerical and sales positions.

With data available only to age 24, less can be gleaned about longer-term career paths for the 1970 cohort. However, the same initial concentration in the trades and a similar rate of attrition is apparent. Initially just below 90% were working in a trade job at age 19 and this fell to 66.7% over the ensuing five years.

Table 12: Occupation in selected years, men with trade qualifications, 1961 cohort

a. CCLO major categories, 1980–91

Occupation	Age 19 (1980)	Age 21 (1982)	Age 23 (1984)	Age 26 (1987)	Age 30 (1991)
Professional & technical	5.2	3.1	5.2	5.8	8.4
Admin., exec. & managerial	0.0	0.3	0.4	2.4	9.3
Clerical & sales	1.5	1.6	5.6	6.9	10.1
Farming & related workers	2.2	3.4	4.0	4.1	2.6
Mining & related workers	0.0	0.0	0.4	1.0	0.9
Transport/comm. workers	0.3	0.3	1.6	4.5	4.8
Trades, production process, labourers	84.3	79.7	67.9	64.3	51.1
Non-trade process and labourers	1.5	4.4	5.2	3.4	7.5
Service, sport, rec. workers	3.1	5.0	6.7	7.2	5.3
Members of armed forces	1.9	2.2	3.2	0.3	0.0
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
(n)	(324)	(320)	(252)	(291)	(227)

b. ASCO major categories: 1989–94

ASCO major category	Age 28 (1989)	Age 29 (1990)	Age 30 (1991)	Age 31 (1992)	Age 32 (1993)	Age 33 (1994)
Managers & administrators	11.0	9.4	11.5	10.4	13.8	15.7
Professionals	4.4	5.2	3.1	2.7	4.8	4.8
Para-professionals	8.8	8.5	8.8	10.8	9.5	13.3
Tradespersons	59.6	56.1	52.4	56.8	49.0	43.3
Clerks	3.1	3.8	5.3	3.6	3.3	4.8
Sales and personal service	4.4	5.7	4.0	3.2	5.2	3.8
Plant & machine ops/drivers	4.4	7.1	7.9	7.7	6.7	6.7
Labourers and related	4.4	4.2	7.0	5.0	7.6	7.6
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
(n)	(228)	(212)	(227)	(222)	(210)	(210)

Note:
Not applicable/not stated excluded

Source:
Youth-in-Transition panel survey, 1961 cohort, Australian Council for Educational Research

Table 13: Occupation in selected years, men with trade qualifications, 1970 cohort

a. CCLO major categories: 1989–91

Occupation	Age 19 (1989)	Age 20 (1990)	Age 21 (1991)
Professional & technical	0.7	1.7	2.6
Admin., exec. & managerial	0.0	0.0	0.9
Clerical & sales	0.7	0.0	0.9
Farming & related workers	2.2	2.5	2.6
Mining & related workers	0.0	0.8	0.0
Transport/comm. workers	0.0	0.0	0.0
Trades, production process workers	89.0	87.6	81.7
Non-trade process and labourers	3.7	3.3	6.1
Service, sport, rec. workers	3.7	3.3	5.2
Members of armed forces	0.0	0.8	0.0
Total	**100.0**	**100.0**	**100.0**
(n)	136	121	115

b. ASCO major categories: 1989–94

ASCO major category	Age 19 (1989)	Age 20 (1990)	Age 21 (1991)	Age 22 (1992)	Age 23 (1993)	Age 24 (1994)
Managers & administrators	2.2	0.0	1.7	0.9	1.1	4.4
Professionals	0.0	0.0	0.0	0.0	0.0	2.2
Para-professionals	2.2	6.6	6.9	8.5	11.6	5.6
Tradespersons	89.1	88.4	82.8	76.9	68.4	66.7
Clerks	0.7	0.0	0.0	0.9	1.1	3.3
Sales and personal service	0.7	0.0	0.9	3.4	5.3	5.6
Plant & machine ops/drivers	0.7	0.8	0.9	3.4	6.3	4.4
Labourers and related	4.3	4.1	6.9	6.0	6.3	7.8
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
(n)	138	121	116	117	95	90

Note:
Not applicable/not stated excluded

Source:
Youth-in-Transition panel survey, 1970 cohort, Australian Council for Educational Research

Finally, the 1961 cohort is examined to assess the pathways of those who did move into the 'higher' positions of managers and administrators, professionals and para-professionals.[33] The occupational pathway of 71 persons from the 1961 cohort who were working in 'higher' occupations in the 1994 cohort has been analysed. While it is illustrative to look at these pathways, they should not be taken as statistically 'typical' due to the very small sample size. All but one of these 71 people completed their apprenticeships by age 22, with the remaining individual completing at age 25. Table 14 suggests that there is a quite rapid movement into managerial and para-professional positions from around the age of 30.[34]

[33] Only 11 such individuals available and the comparative analysis for the 1970 cohort is not attempted.
[34] Note that the 'not appropriate; inadequately described' category will encompass persons who did not respond to the survey in certain years, and those for whom occupation is non-applicable, such as persons in study or unemployment.

The proportion in the CCLO defined trades, production workers and labourers and in the ASCO defined tradespersons categories remains quite high. Relatively few men in the group moved through other occupations such as sales, clerical or labouring. Even just two years prior to 1994 reference year, 19 of the 71 workers were still working as tradespersons. Of the 55 persons with trade qualifications who were in managerial, professional and para-professional positions in 1989, most were in these 'higher' occupational categories by 1994, but only nine had returned to working in a trade occupation.[35] Hence it seems the flows into and out of trade jobs are asymmetric. Nevertheless, trades qualified men are generally stable in their occupational status once securing one of these jobs.

Table 14: Occupation pathways of trade-qualified males who went on to managerial, professional or para-professional positions; 1961 cohort

a. CCLO major categories, 1980–87

Occupation	Age 19 (1980)	Age 21 (1982)	Age 23 (1984)	Age 25 (1986)	Age 26 (1987)
Professional & technical	4	3	5	5	11
Admin., exec. & managerial				1	3
Clerical & sales			2	1	6
Farming & related workers	3	2	3	3	3
Mining & related workers					1
Transport/comm. workers					
Trades, production process, labourers	45	49	32	32	31
Non-trade process and labourers	3	1	1	1	
Service, sport, rec. workers	2	6	6	4	6
Members of armed forces	2	2	3		1
Not app./inadequately desc.	12	8	19	24	9
Total	**71**	**71**	**71**	**71**	**71**

b. ASCO major categories: 1989–94

ASCO major category	Age 28 (1989)	Age 29 (1990)	Age 30 (1991)	Age 31 (1992)	Age 32 (1993)	Age 33 (1994)
Managers & administrators	15	12	15	13	19	33
Professionals	7	10	6	4	8	10
Para-professionals	13	11	14	16	15	28
Tradespersons	19	17	15	19	9	
Clerks	1	2	1	1	2	
Sales and personal service	3	2	2	1	2	
Plant & machine ops/drivers	1	3	2	1	1	
Labourers and related	1		5	3	2	
Not app./inad. desc.	11	14	11	13	13	
Total	**71**	**71**	**71**	**71**	**71**	**71**

Source:
Youth-in-Transition panel survey, 1961 cohort, Australian Council for Educational Research

[35] These individually linked flows are not shown in the table.

All working tradesmen

Similar to the cross-sectional census data presented in table 2, the Youth-in-Transition data indicate that about half of trade-qualified males work in jobs coded as tradespersons' occupations within ten years or so of completing their apprenticeships and that only about half of the males working within trade occupations at this age had completed an apprenticeship. The proportion of tradesmen who had completed (or will later complete) an apprenticeship appears to decline with age, particularly for the 1970 cohort. Thus, alternative non-apprenticeship pathways to trade occupations become increasingly important with age, although these are not necessarily correlated with the acquisition of formal qualifications. From age 24 onward, approximately 40 to 50% of workers in trade occupations were comprised of persons who did not hold, and would not go on to gain an appropriate trade qualification in the form of an apprenticeship. Many of these 'foreign' workers held a certificate as their highest qualification but probably the most notable feature is the high proportion (about 30% from the age of 30) without any reported qualifications at all. A very minor proportion of trade jobs are held by persons with 'higher' qualifications than an apprenticeship.

Some of these 'foreign' workers will include people who began but did not complete their apprenticeship, or at least did not complete their apprenticeship by the appropriate year to have it recorded in the survey as their highest level of qualification. For the 1961 cohort the highest level of qualification was last collected in 1993, when the cohort turned 32. Of those workers with lower than trade qualifications—certificates, 'other' qualifications or no stated qualifications—persons who at one time or another had commenced an apprenticeship accounted for between 27 and 33% between 1989 and 1994 using the ASCO definition of trades occupations.[36] Thus, roughly 15% of the total trade workforce aged around 30 years comprise workers who commenced but failed to complete an apprenticeship.[37] Just over half of these 'non-completers' had gained certificates, although the sample numbers are very small at this level of analysis.

There is also a reasonable degree of stability in the trades among these foreign workers, particularly for the older workers. For the 1961 cohort, around half of those working in trade occupations without appropriate qualifications at age 28 were still working in the trades five years later, based on the ASCO classifications. A similar proportion remain in this state from the ages of 23 to 28 using the CCLO classification.

Concentrating again on the ASCO coding, the Youth-in-Transition data show that non-trade qualified workers are most prevalent in the food trades (and the residual miscellaneous category). As these data cover the ages from 19 to 24 for the second cohort, more of the 'foreign' workers will be those who had commenced an apprenticeship but as yet failed to complete. Concentrating on the 1961 cohort, those trades with the highest proportion of formally qualified workers are the electricity, electronic and communications trades, vehicle trades and metals trades, possibly due to licensing requirements. It is also interesting that these are the trades that do not show an increase in the proportion of 'foreign' workers with age. The restriction of entry based on formal qualification persists over time, whereas it seems that in the other trades, non-qualified people gain entry via the accumulation of work experience.

[36] The proportion is lower using the CCLO definition and drops significantly over time. The lower proportion relative to the ASCO definition can be attributed to the CCLO category encompassing a range of non-trade jobs in which apprentices are less likely to be indentured.

[37] This assumes that very few of these persons did eventually complete their apprenticeship.

Table 15: Highest qualification obtained by males working in the trades

a. 1961 cohort: CCLO category of 'trades, production process workers & labourers', 1980–91

	Age 19 (1980)	Age 21 (1982)	Age 23 (1984)	Age 26 (1987)	Age 30 (1991)
PhD.	0.2	0.0	0.3	0.0	0.4
Grad./post grad. diploma	0.0	0.0	0.0	0.0	0.0
Degree	0.8	1.7	2.2	0.5	1.3
Diploma/associate diploma	3.6	4.1	3.7	2.7	2.2
Apprenticeship	52.1	52.5	51.2	48.5	49.8
Certificate	9.9	10.3	12.7	10.9	17.9
Other	1.0	1.3	1.9	3.2	1.3
None (or none stated)	32.5	30.1	28.0	34.2	27.1
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
(n)	507	465	322	377	229

b. 1961 cohort: ASCO classification of 'tradespersons' 1989–94

	Age 28 (1989)	Age 29 (1990)	Age 30 (1991)	Age 31 (1992)	Age 32 (1993)	Age 33 (1994)
PhD.	0.0	0.0	0.0	0.0	0.0	0.0
Grad./post grad. diploma	0.0	0.0	0.0	0.0	0.0	0.0
Degree	1.2	0.9	0.9	1.8	1.1	0.5
Diploma/associate diploma	2.9	0.9	1.7	2.2	2.7	2.1
Apprenticeship	53.9	55.1	51.1	53.5	53.2	45.6
Certificate	13.1	14.0	18.8	16.2	17.0	15.9
Other	2.9	3.3	2.6	2.6	2.1	2.1
None (or none stated)	26.1	25.7	24.9	23.7	23.9	33.8
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
(n)	245	214	229	228	188	195

c. 1970 cohort: ASCO classification of 'tradespersons' 1989–94

	Age 19 (1989)	Age 20 (1990)	Age 21 (1991)	Age 22 (1992)	Age 23 (1993)	Age 24 (1994)
PhD.	0.0	0.0	0.0	0.0	0.0	0.0
Grad./post grad. diploma	0.6	0.0	0.0	0.0	0.0	0.0
Degree	0.6	0.0	0.0	0.7	1.8	1.7
Diploma/associate diploma	1.7	2.1	1.3	3.7	3.7	3.3
Apprenticeship	69.9	72.6	63.2	65.9	59.6	50.0
Certificate/traineeship	6.9	7.5	11.2	8.9	11.9	11.7
Other	1.2	0.0	1.3	2.2	2.8	1.7
None (or none stated)	19.1	17.8	23.0	18.5	20.2	31.7
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
(n)	173	146	152	135	109	120

Note:
Highest qualification obtained relates to that qualification obtained for the last year the individual was included in the survey.

Source:
Youth-in-Transition panel survey, 1961 and 1970 cohorts, Australian Council for Educational Research

Table 16: Proportion of males in trade occupations who complete an apprenticeship, by trade, 1989–94

a. 1961 cohort

	Age 28 (1989)	Age 29 (1990)	Age 30 (1991)	Age 31 (1992)	Age 32 (1993)	Age 33 (1994)	All years
Metals	63.2	60.0	60.0	57.8	56.5	61.1	59.9
Elect. & comm.	59.6	69.2	66.0	70.5	75.0	62.9	66.7
Building	48.9	52.4	40.0	40.4	44.2	36.6	43.7
Printing	–	–	–	–	–	–	53.3
Vehicle	56.7	58.6	64.3	72.4	72.7	58.3	63.6
Food	40.0	47.1	52.6	47.1	33.3	35.7	43.4
Other	52.8	42.5	28.9	46.2	41.9	27.9	39.6
Total	**55.5**	**55.6**	**52.0**	**55.3**	**54.8**	**46.7**	**53.4**

b. 1970 cohort

	Age 19 (1989)	Age 20 (1990)	Age 21 (1991)	Age 22 (1992)	Age 23 (1993)	Age 24 (1994)	All years
Metals	77.1	80.0	82.9	69.4	72.0	60.7	74.5
Elect. & comm.	81.3	70.8	55.6	68.0	52.6	43.5	63.3
Building	81.3	81.3	72.7	70.0	67.9	62.1	72.8
Printing	–	–	–	–	–	–	27.3
Vehicle	79.2	73.7	71.4	82.4	75.0	45.5	73.1
Food	46.2	60.0	46.2	75.0	37.5	44.4	51.5
Other	40.0	60.0	28.6	37.5	37.5	30.0	38.0
Total	**71.1**	**73.3**	**63.2**	**66.7**	**59.6**	**50.0**	**64.8**

Note:
Based on ASCO definition of tradespersons: only 15 males working as printing tradespersons are recorded in printing over this period for the 1961 cohort, and 11 for the 1970 cohort.

Source:
Youth-in-Transition panel survey, 1961 and 1970 cohorts, Australian Council for Educational Research

Factors causing high levels of unqualified tradespeople

A response to skill shortages

As discussed in the introduction, upgrading unqualified workers could be a temporary or local market specific response to a shortage of qualified tradespeople. While the existence of many out-of-trade qualified tradesmen is good evidence that there are no absolute shortages of qualified workers, it is possible that some skill specific shortage may exist. This section presents partial evidence on the extent this has been influential from two firm-based surveys which have reported comparative shortages and difficulties recruiting tradespeople in Australia.

Table 17 indicates that during 1990 (a recession year) about one in four firms across all industries reported that they had experienced some difficulty hiring tradespeople in the past year. However according to table 18 few of these firms claimed they were upgrading as a solution. Of the 477 firms who reported difficulties recruiting tradespeople, only 3.5% indicated that they regarded upgrading existing employees as the most successful method for overcoming this shortage. By contrast, the overwhelming majority (76.7%) found more

extensive search methods were successful. This may imply that the main difficulty in recruiting tradespeople lies with finding the right set of skills in the right location, given the offered wage, rather than an overall shortage of qualified tradespeople. Chronic overall shortages of skilled tradespeople was probably a minor cause of the large number of informally upgraded tradespeople in the economy. Employers, in 1990 at least, primarily upgraded their employees for other reasons.

Table 17: Percentage of firms experiencing difficulties attracting suitable employees by occupation, Australia, 1990

	Percentage
Managers	12.3
Professionals	19.9
Para-professionals	14.4
Tradespersons	24.8
Clerks	15.7
Sales workers	13.1
Plant and machine operators	9.9
Labourers etc.	14.9
No difficulties	34.2
Total	**100.0**

Note:
Number of firms = 2004; excludes firms with less than 20 employees; firm level data have been weighted by employee size.

Source:
Australian Workplace Industrial Relations Survey, 1990, Employee Management Relations questionnaire

Table 18: Most successful method for filling vacancies for tradespersons, clerks, sales and personal service workers, plant and machine operators and drivers, labourers and unskilled workers,[a] Australia, 1990

	Percentage
Greater search effort	76.7
Advertised longer or more widely	59.3
Word of mouth	7.2
CES	6.9
Used recruitment or management consultants	3.3
Better pay or conditions	5.4
Offer higher wages and/or conditions	5.4
Reduce selection standards	4.9
Used contractors/casual or part-timers	3.3
Change selection criteria	1.6
Upgrade	3.5
Promote internally	2.5
Increase training for current employees	1.0
Position not filled	6.0
Other	2.5
Total	**100.0**

Notes:
[a] Firms who nominated difficulty finding tradespeople over the past year
Number of firms = 477; excludes firms with less than 20 employees; firm level data have been weighted by employee size.

Source:
Australian Workplace Industrial Relations Survey, 1990, Employee Management Relations questionnaire

Table 19 presents results from a 1988 (a high activity year) survey of high tech manufacturing establishments[36]. This survey reveals that about half of all firms relied upon on-the-job training for getting staff with the required skills. However, firms who report difficulties *getting staff (35% of the sample) make more frequent use of all types of recruitment* strategies—as one would expect—but they are proportionally less likely to rely upon training existing employees. The interpretation of this finding should be tempered by the realisation that firms' recruitment strategies and their supply of skilled labour are mutually interdependent. Firms may use a given strategy as a second-best option rather than a preferred option. However, if it is assumed that firms who report that they experienced no difficulty getting the required skills are all pursuing their preferred recruitment strategy, then table 19 suggests that informal upgrading is an important and efficient source of employee skills even when it is easy to recruit staff externally. Unfortunately it is not possible to gauge from the survey whether these behaviours relate in equal force to trade staff as well as to all skilled staff. Again, this suggests that firms place a high value on specific skills and abilities relative to general skills.

Table 19: Strategies used to meet skilled staffing requirements, manufacturing establishment having at least one advanced manufacturing technology, as at 30 June 1988*

Strategies used	Having *no* difficulty getting staff with the required skills				Having difficulty getting staff with the required skills			
	Very often	Mod. Often	Not often or at all	Total	Very often	Mod. often	Not often or at all	Total
Recruit staff from outside	5	22	72	100	13	40	48	100
	8 %	*18 %*	*34 %*		*14 %*	*26 %*	*31 %*	
On-the-job training for existing staff	45	42	12	100	53	40	7	100
	68 %	*35 %*	*6 %*		*58 %*	*26 %*	*5 %*	
Special in-house training for existing staff	10	28	62	100	14	34	52	100
	15 %	*23 %*	*29 %*		*15 %*	*22 %*	*34 %*	
External training for existing staff	6	29	65	100	11	42	47	100
	9 %	*24 %*	*31 %*		*12 %*	*27 %*	*31 %*	
	100 %	*100 %*	*100 %*		*100 %*	*100 %*	*100 %*	

Note:
*The survey covered 6500 manufacturing establishments employing ten people or more. 33% of these 6500 firms reported at least one advanced manufacturing technology.

Source:
ABS Manufacturing Technology Statistics, Australia, 30 June 1988, Summary, cat. 8123.0

To summarise, results from neither survey suggest that upgrading has been a response to difficulties in recruiting skilled labour from the external labour market. The fact that a large number of unqualified and out-of-trade tradesmen exist is in itself enough evidence that there is and has been no *absolute* shortage of tradespeople in the metal, building, electrical and vehicle trades. For some jobs it appears that employers prefer to hire cheaper unqualified workers and train them for their own specific needs rather than offer higher wages and get more generally qualified workers. Some 'trade' jobs may require a high level of firm-specific skills.

While there are good grounds for suspecting that the more expensive generally trained worker is not always preferred to the cheaper semi- or unskilled worker, it does not mean that the current situation is optimal. Employers may prefer to hire workers with shorter general

[36] These firms are defined as using at least one advanced manufacturing technology and employing over 10 employees.

qualifications or to have access to off-the-job training programs more tailored to their firm-specific needs than hire a person with no post-school qualifications at all.

Level of skill required for 'trade' jobs

Survey data from the International Social Science Surveys (Australia) for the years 1987–88 to 1989–90[n] indicates that on average, tradespeople believe that only 3.1 years formal training is required to do their job (table 20) and a further 5.5 years work experience are required to perform very well (table 21). This is 25% below the standard apprenticeship term of four years. While this sounds like a *prima facie* grounds for believing that a significant portion of workers doing trade work require less formal training than is normally given by apprenticeship, three caveats should be borne in mind.

First, the term of the indenture or contract has been partly determined by economics rather than heuristic factors. The final year(s) of the indenture/contract are intended to 'pay back' the employer for their costs during the unproductive early years. Secondly, an 'underestimate' of required training or education is not confined to people in trade positions. Professional jobs are generally defined as those requiring university (or CAE) qualifications; however, only 69.7% of surveyed professional workers thought their job needed this type of education (table 22); that is, while about 30% of professional workers believed that they could perform their job with less than a degree or diploma, 30% of working tradespeople believed that they could perform their job with only two years of formal training. A further 10% of working tradespeople thought that only three years training was necessary. Finally, people may under-estimate the length of training or education because, while current jobs do not require the full complement of skills, this may not necessarily be true for the needs of their jobs over their lifetime career paths.

Table 20: Years of formal training needed for job, workers in trade, professional and para-professional jobs, 1986–87 to 1989–90

	Trade jobs	Professional jobs	Para-professional jobs
1986–87	2.8	2.8	2.5
1987–88	3.1	3.1	2.3
1989–90	3.1	3.2	2.7
All years	3.1	3.1	2.6
Sample size	*633*	*724*	*466*

Source:
International Social Science Surveys (Australia), 1987–88 and 1989–90

Table 21: Years of practical experience (in addition to formal training) required to do job really well, workers in trade, professional and para-professional jobs, 1986–87 to 1989–90

	Trade jobs	Professional jobs	Para-professional jobs
1986–87	6.0	6.4	4.1
1987–88	6.2	5.1	5.5
1989–90	5.2	7.9	6.2
All years	5.5	7.2	5.8
Sample size	*633*	*724*	*466*

Source:
International Social Science Surveys (Australia), 1987–88 and 1989–90

[n] See appendix B for details of these surveys.

Table 22: Percentage of workers who believed their job requires workers to have some university or CAE education, 1986–87 to 1989–90

	Trade jobs	Professional jobs	Para-professional jobs
1986–87	9.0	73.1	22.1
1987–88	6.5	65.4	19.8
1989–90	12.4	70.2	34.6
All years	10.7	69.7	30.8
Sample size	*633*	*724*	*466*

Source:
International Social Science Surveys (Australia), 1987–88 and 1989–90

Table 23: Percentage of workers who believed their job requires workers to have completed Year 12 at school, 1986–87 to 1989–90

	Trade jobs	Professional jobs	Para-professional jobs
1986–87	18.1	91.4	57.3
1987–88	20.0	84.0	62.4
1989–90	23.6	87.4	68.9
All years	22.0	87.3	66.3
Sample size	*633*	*724*	*466*

Source:
International Social Science Surveys (Australia), 1987–88 and 1989–90

To the extent that earnings reflect productivity, the former can be used to gauge whether or not workers without formal trade qualifications are effective substitutes for those who have completed an apprenticeship. If there are systematic differences between the earnings of workers according to their formal qualifications, it may be reasonably concluded that they perform with different levels of efficiency.

The view that qualifications matter seems to be supported by individual income data from the 1996 census (table 25). For those working as 'tradespersons' there is considerable variation in earnings by level of qualification. Not only are skilled vocational qualifications associated with higher earnings, but tradespeople with higher qualifications earn a significant premium over trade qualified workers. To test for whether the 'qualifications' premium may have been caused 'artificially' by licensing requirements, a sub-group of the non-licensed metal and automotive trades were also examined. This showed a similar pattern.

A similar pattern is also evident for people working in intermediate or elementary production jobs. Workers who held skilled vocational qualifications earned a premium over the unqualified and workers with a basic vocational certificate. However, in contrast to tradespeople, higher qualification was associated with lower incomes.

Furthermore, Ordinary Least Squares (OLS) regression analysis presented in table 25 found that after controlling for implied years of work experience, post-school qualifications have a large and significant effect (1% level) on the incomes of working tradesmen. Bachelor degree qualifications are associated with earnings of $215 per week more than an unqualified worker and associate diploma or undergraduate diplomas increase by $194. However, the samples for these two groups are very small.[40] Of considerable interest are the increments associated with skilled and basic vocational qualifications. Table 25 indicates that after controlling for implied work experience, the premium earned by both qualification groups were $83 and $67

[40] We use the word 'associate' because we cannot determine from this analysis whether people with higher earnings potential tend to complete these higher qualifications or the higher qualifications make people more productive and thus earn higher incomes.

respectively.[41] The number of workers with a basic vocational qualification were very small, so this number should be treated with some caution. Additional years of work experience have been entered into the equation in natural log form and the coefficient indicates that an additional year of experience on top of one year lead to an earnings increment of $49 per week while an additional year over five years would increase a worker's weekly earnings by $13. This size of this annual increment falls with additional years of schooling. If earnings reflect productivity, then a year spent in acquiring a basic vocational certificate will have a larger impact on productivity than a year spent acquiring informal skills through work experience.

Table 24: Average individual gross weekly income for male employees working in selected manual occupations by post-school qualification, Australia, 1996

Post-school qualifications	Tradesmen in metal, building, electrical and vehicle $	Tradesmen in metal and vehicle only $	Intermediate or elementary worker $
Bachelor degree and above	753.1	798.0	545.4
Associate and undergraduate diploma	715.4	752.5	541.2
Skilled vocational qualification	647.6	658.7	598.0
Basic vocational certificate	630.4	696.0*	600.9
No post-school qualifications	540.0	510.2	516.1
(n)	5076	2529	7631

Note:
*The sample size for this group was below 50.

Source:
1996 Census of Population and Housing, 1% sample file

Table 25: Effect on average individual gross weekly income for men working in metal, building, electrical and vehicle trade occupations, Australia, 1996

	Co-efficients	t-statistic
(Constant)	364	17.592
Bachelor degree and above	215	5.561
Associate and undergraduate diploma	194	6.378
Skilled vocational qualification	83.	8.593
Basic vocational certificate	67	1.806
Non-English-speaking background	-21	-1.766
Natural log of years of work experience	72	10.438

Source:
1996 Census of Population and Housing, 1% sample file

Conclusion

While there have been high levels of mismatch between trade qualifications and those actually working in the trade in the four trade groups, this has been declining over the last two decades.

Only limited survey evidence on why employers hire unqualified workers to do skilled work exists. Nevertheless, the material assembled above suggests that difficulties recruiting formally trained workers have not been a major cause. Survey data on workers' views about the skills required to do their job indicate that a majority of so-called 'trade' jobs require training similar to a traditional 3-to-4-year apprenticeship. However, earnings data reveal that

[41] These differentials are meant to reflect possible difference in productivity in a narrowly defined set of occupations rather than the returns to the worker from completing certain qualifications.

trade-qualified workers only receive a small premium over people qualified with a one-year certificate in both trade jobs and intermediate and elementary production jobs. While this suggests that they are slightly more productive, it is not clear that all jobs warrant the full skilled-trade level qualifications. Many employers have been content to upgrade workers to do trade jobs (rather than bid-up wages to attract qualified ex-trade tradespeople) which suggests that a significant minority of jobs do not need formally qualified workers.

It is possible that employers prefer unqualified workers to undertake trade work because these employees possess desirable non-qualification-related characteristics, because of the narrowness of the tasks involved in specific trade jobs, or because unqualified workers are prepared to work for a (slightly) lower wage rate in a given job than qualified tradespeople.

3 Factors inhibiting training paths for unqualified tradespeople

Introduction

The previous chapter analysed data on levels of informal upgrading in the skilled trades over the 1971 to 1996 period. In the metal, building, vehicle and electrical trades, about 4 in 10 men working as a skilled tradesman did not have a trade certificate in 1971. By 1996, this had fallen to 2.5 in 10 for the metal, vehicle and electrical trades and 3 in 10 for the building trades. In principle, these jobs require a certified tradesman to be fully functional and to have mastered all the areas of expertise within a particular trade field.

However, if between 2.5 and 4 in 10 workers are satisfactorily performing their job without formal training, then the value of a considerable portion of the training system is in some doubt.[42] Some tradesmen's jobs require less than the full set of practical and theoretical trade skills and these jobs may more appropriately require shorter, more basic, levels of formal training. On the other hand, some people may efficiently acquire the necessary trade skills on the job and have small need for the formal limitations and requirements of an officially controlled training program.

Relatively high levels of unqualified tradesmen implies a type of failure by the training system to provide an appropriate mix and quantity and quality (lower skill level) of training courses for workers and businesses. Some of the inflexibility of apprenticeship arises from the traditional assumption that trade training should be a (workforce) entry pathway. This has made traditional trade training less suitable for older workers who require structures which offer scope for prior recognition, more out-of-normal working hours class times and a smaller salary sacrifice on account of their financial commitments, maturity and work experience. Potentially the training system should offer types of training and accreditation such as:

- short courses in the trades areas for trade jobs that do not require the full set of trade skills
- training programs for experienced workers who require additional or top up off-the-job training/education to achieve the competency of fully skilled worker
- accreditation procedures for workers who have acquired full competency but have not completed an apprenticeship

This chapter examines factors which may have inhibited the development of these three forms of training or accreditation. The first part examines the relevant vocational training legislation which was operative during 1980, 1990 and 2000 to establish the degree to which it has impeded advantageous reforms to the training system across Australia. The second part examines reforms to industrial awards which occurred during the process of award restructuring. The third section discusses institutional procedures within both accreditation and training bodies which have hindered or supported due recognition of informally acquired trade skills for both accreditation processes and course acceptance. The fourth and final part considers some economic factors which may have limited the incentive by either employers or employees to formally upgrade their trade qualifications.

[42] These high levels of unqualified tradesmen can be compared with professional and technical workers where from 3 in 10 to 2 in 10 workers held no post-school qualifications.

Legislation governing the training of skilled labour, 1980–2000

Complete flexibility or deregulation of core training programs is unlikely to be an optimal state of affairs. The regulation and control of the systems of skill and knowledge acquisition are important to protect the student or trainee from investing in sub-standard education or training. It is important to maintain the integrity of the credential and thus permit an efficient transmission of information to prospective employers about job seekers.

However, many training regulations or established industry work practices have been found to have little to do with the efficient and effective transmission of skills and knowledge. In tertiary (higher) education, there has been a trend towards making the form of delivery in Australia more accommodating to student demands. In contrast to earlier decades, many students can now take courses part time or off campus, can defer or delay their training period and can receive due recognition for prior skills and knowledge. It is usually possible for people to study single (non-qualification-related) subjects and enrolment is rarely tied to employment or prior work experience. In general, there are no practical limits on the student's age, sex or family background and rules exist to select entrants according to objective criteria. Standards are established for successful completion and the student or trainee is primarily responsible for meeting the requirements of the course.

Trade training has been much slower to adopt these reforms than higher education. Even today, there are only two common routes for people trained in Australia to formally obtain a trade certificate or AQF certificate III: first through a 3-to-4 year apprenticeship (taken as a whole or in parts) which involves continuous employment with a single or group employer and a series of structured off-the-job courses in the first three years. Secondly through either the Commonwealth *Tradesmen's rights regulation act* (TRRA) *1946* or State and Territory legislation which gives formal recognition to non-apprenticed trained tradespeople. The TRRA was established in 1946 to give formal recognition to adults who undertook intensive training during the Second World War ('dilutees').[43] In practice most of the applicants over the past few decades are seeking recognition for overseas qualifications and there were very few experienced workers who have been upgraded through Australian industry who used this channel.[44]

However, most of this inflexibility appears to be due to the interpretation of State training legislation rather than the wording of the legislation itself. While in practice trade training in Australia has had an almost Dickensian approach to its trainees,[45] the general approach of the legislation since the 1980s in many States has been broad and far-reaching and has, in most cases, given apprenticeship authorities considerable scope. In many States, the authorities were within their power to grant generous time credits off the indenture period for prior work experience which would have allowed an upgraded worker, with supplementary training from a college-based course, to gain a formal qualification in a very short time.

Tables A 1 and A 2 in appendix A give a summary of the relevant features of trade training legislation which were current during 1980. As these tables reveal, the duties and responsibilities of most of the State training authorities were broad and embracing. The New South Wales, Victoria and Queensland acts gave the relevant training authority the duty of reviewing and recommending *any* reforms it considered necessary to ensure an adequate system for training skilled workers. In South Australia, the authority was charged to give any recommendations for the training and education of apprentices in general. The scope in

[43] *Tradesmen's rights regulations act 1946* permits committees in the metal and electrical trades to grant formal trade status to a man who had at least seven years experience in the relevant trade, was a member of the armed forces during the Second World War and had the necessary experience and training or had an overseas qualification and had the necessary skills.

[44] Off-shore prospective immigrants may also seek recognition under the *Migration act 1958*.

[45] Apprentices often faced penalties for not attending classes or work. Some trade certificates were given after the apprentices had served their time regardless of whether they had passed their college-based exams.

Western Australia and Tasmania was more circumscribed and limited to advising on the number of apprentices to be trained.

By 1980, adult apprentices (over 19 or 21 years) were allowed, but not particularly encouraged. Adults had to apply especially to the authority and only Victoria had provision to grant credits for prior skills and knowledge. While this attitude to adult trainees was not liberal for its time, it was an improvement on earlier decades when apprentices were required to finish their indenture before their 23rd birthday. Nonetheless, credits could be obtained for apprentices of any age who had higher educational attainment (NSW) or some type of pre-trade course qualification (Victoria, Queensland and Tasmania). Unapprenticed juniors were not permitted to work in a proclaimed trade in any State.

Even though a review of training legislation had been undertaken in every State during the 1980s, by 1990 there had been little change in substance (see tables A 3 and A 4). The scope and duties of the training authorities had remained as broad as before. NSW, Victoria and Queensland specifically included a clause that allowed them to grant a trade certificate to people who had not completed an approved training program but had nevertheless acquired the skills and knowledge. This amendment opened the way for upgraded adult tradespeople to gain formal recognition.

New South Wales allowed adult apprentices to gain credits for prior work experience while Queensland expressly suggested the establishment of vocational courses as an alternative to apprenticeship. South Australia joined Victoria, Queensland and Tasmania in giving credits for pre-trade courses.

By 2000, as shown in tables A 5 and A 6, a new series of training acts reaffirmed the broad role and responsibilities of the training authorities in each State. Queensland continued to deal explicitly with non-apprenticeship-based forms of trade training. Victoria and South Australia expressly mentioned part-time training. NSW, Victoria and Queensland continued to allow trade certificates to be granted to people who had not undertaken an approved training program but had acquired the necessary skills and knowledge. NSW and Victoria both gave some conditions under which non-apprenticed juniors may be permitted to work in a trade (school work placements). NSW, Victoria and Queensland continue to explicitly mention credits off the indenture term for work experience or pre-trade courses but South Australia, Western Australia and Tasmania have refrained from these issues.

If the various State training authorities were to be judged according to the fulfilment of their main responsibility, to ensure that their respective States are supplied with an adequate supply of skilled tradespeople, then most could be said to have failed. As discussed in chapter 2, the poor match between trade qualifications and trades jobs evident for most of the second part of the twentieth century (chapter 2 above), casts doubt on the ability of the training system to respond to the needs of industry's employers and workers. The falling mismatch during this period may be due in part to some of the measures of the training authorities at the time[46] but, with the exception of Queensland, these have operated exclusively within the traditional apprenticeship system.

In sum, for most States, especially the larger eastern seaboard States, the appointed apprenticeship or training body has been given a broad role which furnished the authority with the duty to recommend to the minister *any* measure necessary to fulfil the State's skill needs. Viewed in this light, the majority of training innovations, except for the Commonwealth inspired reforms to trade training since 1998, appear timorous and marginal.

However, the explicit mention of procedures, such as recognition of informal skills or credits for formal training elsewhere, has been patchy and uneven between States.

[46] The major innovations have included wage subsidies (Commonwealth and State), group apprenticeship schemes and pre-trade courses. Only Queensland has introduced vocational trade school courses as a substitute for apprenticeship.

Award restructuring since 1988

During the late 1980s and early 1990s, in addition to the series of reforms to State legislations, there was a major movement to reform the system of industrial awards. Under the Hawke/Keating Labor Government, Australian industry (unions, employees and managers) was involved in a formal restructuring process to modernise industrial awards to improve the productivity and efficiency of the workplace. With respect to training this embraced:

- making training more broadly based and portable between firms
- developing nationally consistent and recognised standards of accreditation and recognition
- changing occupational classification structures to facilitate career paths (broadbanding) and sequentially accredited training programs
- improving incentives for both employees and employers to participate in skill-related career paths
- promoting formal recognition of informally acquired skills and knowledge

Several institutional bodies were established to facilitate these changes. A tripartite national metal and engineering training and career development body was established in 1989 to develop consistent training standards across Australia to complement the new awards, a system of employer on-the-job accreditation, recognition for prior formal training procedures, involvement of schools in the process of skill formation, development of traineeships and adult apprenticeships in the trades. Also in 1989, the Commonwealth Government allocated $12 million to assist the progress of award restructuring within workplaces through advisory services, the provision of skills audits and training plans, funding for pilot projects and 'change' training for management (Macken 1989, pp.94–8).

An estimate of the extent to which the award restructuring process addressed and dealt with training issues can be revealed through a direct examination of the 1990 and 1995 Australian Workplace Industrial Relations Surveys (AWIRS). According to the 1990 survey, award restructuring was the most frequently negotiated item out of a list of 13 items with unions in all workplaces with more than 20 employees (see table 26). In workplaces where tradespeople were the main occupation, as a subject of negotiation, it came equal first with pay. In the light of the above studies it is most probable that many of these discussions would have been concerned with the number of award classifications, unions and the development of enterprise agreements, rather than career paths and training.

Table 27 reports the main changes in the workplace between 1987 and 1990 according to employee relations managers (human resources, personnel and IR managers) and union delegates. Less than 10% of firms reported no major change but workplaces which did experience a change had undergone over three major changes on average. According to employee relations managers, 41.4% of employees worked in firms which had introduced new career paths between 1987 and 1990 and about 35.9% worked in firms which had introduced training courses where previously none had existed. In the opinion of the union delegate these innovations were slightly lower.[47] Employee relations managers and union delegates in firms whose main occupational group was tradespeople were less sanguine. They believed that about one in four employees worked in firms where new career paths had been introduced and about one in three or one in five worked in firms which had introduced new training courses.

[47] However, the correlation between the employee relations manager and the union delegate was not high for these variables (between 0.2 and 0.3).

Table 26: Subject of last negotiations with main union at workplace, Australian firms, 1990

	All firms	Firms whose main occupational group was tradespeople
Pay	10.4	15.0
Work conditions	6.1	3.1
Hours of work	6.4	8.7
Dismissals/discipline	9.4	13.4
Intro. of technology	1.1	.8
Occupational health & safety	5.0	5.5
Award restructuring	*17.4*	*15.0*
Staffing levels	8.0	4.7
Allowances	2.3	3.9
Management practices	1.0	7.1
Work practices	6.3	7.1
Roster	2.5	2.4
Overtime	0.8	0.8
Other	23.1	18.9
Total	**100.0**	**100.0**

Note:
Excludes firms with less than 20 employees; firm level data have been weighted by employee size.

Source:
Australian Workplace Industrial Relations Survey, 1990, Employee Management Relations questionnaire

Table 27: Main changes at workplace since 1987, Australia, 1990

Change	Employee relations manager		Union delegate	
	All firms	Firms whose main occupational group was trades people	All firms	Firms whose main occupational group was trades people
Introduction of or change to dispute settling procedures	29.5	22.5	23.1	28.2
Alteration to award classifications	51.7	41.9	46.8	40.4
Introduction of new career paths	*41.4*	*25.7*	*37.7*	*25.2*
Introduction of formal training where previously none existed	*35.9*	*33.5*	*32.8*	*22.9*
Introduction of pay increments	19.5	16.5	27.1	31.4
Removal of discriminatory clauses in awards	14.8	11.9	13.6	12.9
Change in working time arrangements	43.7	41.4	42.5	40.2
Introduction of consultative/ employee participation arrangements	25.6	30.5	25.5	32.9
Introduction of payment by EFT	51.1	62.3	49.3	70.9
Changes to work practices	54.9	45.8	45.2	50.2
Total changes	**368.1**	**332.0**	**343.6**	**355.2**
No changes	8.0	8.0	8.4	7.1

Note:
Excludes firms with less than 20 employees; firm level data have been weighted by employee size.

Source:
Australian Workplace Industrial Relations Survey, 1990, Employee Management Relations and Union Delegate questionnaires

An informal survey of three national industry training advisory boards (ITABs) was undertaken during late 2000 to gain a qualitative perspective of the effects of award restructuring. Most people interviewed held a common view that the process of award restructuring had a positive impact on both career paths and commitment to training and skills accumulation, but that the process did not reach its full potential. The development of a skills-based classification in the building and construction award, for example, led to a greater recognition of skills and an associated increase in training and broadening of the skills base in the industry. In the engineering sector, award restructuring was seen to expand career options and make them accessible for a wider cross-section of the workforce. However, interviewees felt that the process was fragmented. In the automotive industry, award restructuring was thought to have been quite successful in removing barriers to cross- and multi-skilling in manufacturing, but that the award remains very restrictive in the automotive retail sector, with many low-paid jobs with very limited career paths still existing.

From a broader perspective, award restructuring contributed to changing the 'mindset' of industries to be aware of the benefits of increasing flexibility and the role of skills accumulation in doing so. Notwithstanding the gains made, several factors were seen to result in the process failing to reach its full potential. These included intransigent industrial demarcations, the growth of enterprise bargaining agreements which offered rewards based on achieving industrial harmony rather than linked to skills or work value, and economic trends of specialisation which have narrowed the demand for skills in many lower level positions. Another drawback noted was that the incentive structure built into the awards could lead to training that was wasteful. An example cited was where workers would obtain forklift operators' certificates because this meant they received an additional pay loading under the award, even though there was no likelihood of their ever needing to operate a forklift.

The general view is that the award restructuring process made an important contribution to improving career paths and access to training in a range of sectors, but that it was perhaps a first stage or 'transition stage' in a process that has since been overtaken by other economic and industrial relations trends.

Metal industry awards

Award restructuring, which began in the metal trades in 1987, had by 1990 achieved considerable progress (Curtain & Mathews 1990). Both metal and vehicle unions had a positive attitude and commitment toward restructuring: they recognised that without restructuring their industry may face continual declines in employment due to enhanced competition within the industry. However, the unions which represented skilled labour, in keeping with their vested interests, were often hostile toward the development of training programs while the lower skilled unions were generally positive (Edwards 1996).

Prior to award restructuring, the Metal Trades Award had 300 (fairly rigid) classifications and 1800 rates of pay which, with the exception of the electrician, did not contain any career structure nor provide for training mechanisms (Macken 1989, p.72; Plowman 1990). By 1990 these classifications were broadbanded into 14 wage groupings based on skill levels achieved through formal qualifications. These range from production workers who have completed a one-week induction training through to a professional engineer (Plowman 1990, p.65). There is very limited information on the prevalence of formal training courses for employees prior to this period. According to Wright (1991), formal training schemes between 1940 and 1960 in manufacturing were not common, especially for operatives. A one-off Department of Labour and National Service survey conducted in 1953 found that only 14% used nominated formal training schemes and most relied upon learning-by-doing.

In June 1989, a traineeship specific to the metal and engineering industry was agreed upon. In contrast with the past, a procedure for establishing an adult apprenticeship in the metal industry was annexed to the agreement (Macken 1989, pp.83–9). Adult apprenticeships and

specific training paths for non-trades employees were at this time also included in some enterprise agreements.

During 1990, the Metal Industry Award was amended to state that parties to the award should recognise the need for a greater commitment to training and skill development and that employers were specifically required to develop training programs (Plowman 1990, p.65).

Some of the developments in training during this period were embodied in new enterprise agreements rather than in the industry award. Kodak and BHP for example, changed the wage schedule from payment by task or job tenure to payment by training and skill acquisition (Edwards 1996). Training programs were introduced during this period and substantial training budgets were allocated. Many of these early training schemes in these two firms were not commercially successful and the budget was wound back. Nevertheless, award restructuring can be accredited as a catalyst for these innovations.

Other industry awards

The metal industry was considered a pace setter for the implementation of award restructuring, having already begun to consider award reforms in the mid-1980s. During 1989 the ACTU recommended and the Australian Industrial Relations Commission endorsed a plan that restructuring follow a blueprint based on the Metal and Engineering Award and apply generally to other industries (Plowman 1990, p.62). This blueprint included the provision for eight to nine levels mostly based, in the upper levels at least, on the accreditation of formal qualifications.

While apprentices are mostly covered by legislation, some awards such as the Building and Engineering Trades (Nickel and Mining Processing) Award, 1968, explicitly extends coverage of the award to apprentices. This award set a maximum for the ratio of apprentices to tradespersons, as do other awards. However, with the maximum set at a ratio of 1:1 this could hardly be considered to be restrictive in any way. On the other hand, this award stipulates that apprenticeships will be a minimum of five years, although the time to be spent in off-the-job training stipulated in the award is less than in the more common four-year apprenticeship.

Parties to the award are committed to a co-operative approach to improving efficiency and productivity. To this end they agreed to establish working parties to trial and test various skill levels. Through this process any measures identified were to be '... related to implementation of a new classification structure ... and matters of training'.[48]

The Building Trades Association of Unions of Western Australia (Association of Workers) and employer organisations submitted a statement of progress by the State Working Party on issues pertaining to the Structural Efficiency Principle (SEP). The statement was submitted to the Western Australian Industrial Relations Commission[49] and claims to have made substantial progress in the area of skill level definitions and skills audit/analysis. The statement also expressed that there had been significant agreement on SEP and related issues. Among these were the need for national standards and training accreditation bodies, the restructuring of the national and State building and construction industry training councils, and the establishment of building sector training funds to support the cost of additional training[50].

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[48] Many awards were varied around the early 1990s to accommodate the requirements of SEP under Mark III of the Accord. The Earth Moving and Construction Award No. 10 for example, was varied in 1990 to state that both parties to the award are committed to '... participate in a testing process in accordance with ...'

a. Acceptance in principle that the 'new award skill level definitions will be more suitable for the needs of the industry ... [allowing for] a wider range of duties where appropriate'.
b. The parties will create a genuine career path for employees which allows advancement based on industry accreditation and access to training.

[49] Western Australian Industrial Relations Committee (No. 296 of 1990, 2 April, Commissioner A.R. Beech)

[50] At the time of the submission draft legislation was before the State parliament to bring this into effect.

The submission also suggested that accreditation should be based on national standards and that these be the 'sole criterion' towards progression in a proposed skills/career path. It was also stated that there was a need to cover the transition of current workers in the industry into the new award classification structures with no reduction in pay and access to higher skill levels based on accreditation. There was agreement between parties on the number of levels and relativities between levels. The new skills matrix was to apply across five streams which were: structural; finishing; mechanical operating; plumbing; and maintenance services.

To what extent the awards have been effective or have constrained training in practice is clearly a different matter. Nonetheless, there do not appear to be any obvious obstacles within the awards themselves which would constrain the level of training in any way. Indeed, the rhetoric suggests that the awards are highly conducive towards training, skill development and career pathways.

Institutional procedures

Since 1980, potential has existed under Commonwealth legislation and some State legislation for informally upgraded workers to receive credit and recognition for their skills through:

- formal recognition for their skills (subject to an assessment)
- supplementation of their theoretical skills by way of TAFE/vocational school education
- credits to reduce the term of their indenture/contract period if they chose to do an apprenticeship
- credits to exempt them from off-the-job course attendance if they chose to do an apprenticeship

The experiences within the various States with respect to the formal accreditation of non-apprentice trained tradespersons has been quite low key. When asked whether the industrial legislation changes and award restructuring of the late 1980s had any impact on the process of skill recognition of informally trained trades, there was some consensus among the State training authorities that there had been no major change. In general, the reason given for this was that the demand for recognition was marginal. Queensland was an exception to this and seemed to have made considerable progress towards a structure that both facilitated and encouraged this kind of recognition.

The approach in Queensland is particularly helpful in understanding the nature of existing impediments in other States. There has been tripartite co-operation between government, ITABs and the State training authority to see that the process of recognition works, in terms of access, standards and processes, as an alternate pathway.

The mechanics of this process are instructive: the training authority works with ITABs to develop bridging of recognition processes and see that there are adequate and consistent standards in place to ensure that the outcomes are satisfactory for employers and trades alike. As far as the accreditation procedure itself goes, the authority uses either independent assessors or has delegated authority to independent bodies, such as ITABs, to carry out assessment. The authority's direct involvement through independent contracted assessors is to fill in the gaps left by the delegated bodies. The assessors go to the workplace of the tradesperson in question to carry out the assessment. This effectively minimises the cost and inconvenience to the tradesperson. It is also the authority's intention to gradually reduce its direct involvement and have all assessment carried out by independent delegated bodies.

As far as the impact of restructuring is concerned, the Queensland training authority considers the incentives provided as a result of award restructuring as a major driver of the demand for recognition/accreditation of trade skills acquired outside the apprentice system. Thus, to access higher pay, these tradespersons are seeking and, with only a few exceptions, getting accreditation. The other driver of demand for formal recognition has been the licensing requirements for various trades in Queensland. Most of these changes have been in

place since about 1995, although more generally they have taken place as part of a process of continual development.

In all of the other States interviewed the viewpoint expressed was that formal recognition for informally trained tradespersons was a minor issue and there was, in any case, very limited demand for it. One reason suggested for this was that there was no incentive for registered training organisations (RTOs) to encourage recognition for prior learning (RPL) or recognition for core competencies (RCC), since it reduced the potential revenue they would derive from a client. One State had a process in place where it was a formal requirement of the training organisation (TAFE and private) to inform apprentices and trainees of the ability to get RCC and RPL. In theory RPL and RCC can involve the whole course being exempted for an apprentice. However, in practice it is rare for more than one year to be exempted. Of the (approximately) 5000 trade completions a year in Western Australia, only about 200 of these involve significant reductions (up to a year). There are also plans in place in Western Australia to have an independent body established solely for the purpose of carrying out RPL and RCC assessments.

In terms of flexible access, such as night classes at RTOs, it was not considered to be the role of the authority to determine when classes could be run, rather it was the domain of the colleges themselves. The employers were also identified as having a role to play as far as making time available for people to attend required off-site training. There is also some issue over whether there is flexibility in the sense of private RTOs being able to cater to this market. It is the case in Western Australia, for example, that only TAFE colleges can provide services in areas where the authority considers the 'market' to be too thin to warrant another provider. This is the case in virtually all of Western Australia, with the exception of Bunbury and Perth. Even areas within the metropolitan area can come under this prohibition.

For the most part it was felt that it is no different now, in terms of institutional obstacles, than it was in the late or early 1980s.

Another issue that was raised as to why there may be obstacles, both in the 1980s and at the present point in time, was that there is a lack of awareness among workers of a system whereby they could obtain recognition of skills. It was suggested by one training authority that where union coverage was strong, unqualified trade workers were aware and used it. This is not surprising, given the unions are most likely to have an understanding of the award restructuring that occurred and the implications for their members of getting formal recognition of skills. It was also considered to be a cultural issue, where some industries were progressive, others not. In particular, the automotive industry was considered to be a leader in getting skills upgraded. In Victoria it was also put down to industry differences, with some industries driving the changes, particularly the vehicle industry. However, it was not formal recognition of full trade status *per se* that changed, rather, it was reflected in increased training.

Formal trade accreditation (non-apprentices)

This section considers progress toward removing specific institutional impediments to career paths, and in the next chapter an attempt is made to establish the number of workers who have chosen to follow these paths. Information in this chapter has mainly been derived from informal interviews with training-related organisations.

Non-apprenticed Australian-trained workers may receive formal recognition through two routes, recognition under the TRRA (1946) and recognition under State or Territory legislation. TRRA covers six trade areas only: engineering, electrical, boilermaking, sheetmetal, blacksmithing and the boot trades. About 56% of applicants are granted a certificate. Until 1986–87, State recognition was only possible in NSW, Victoria and Queensland but embraced all trades. Recognition legislation was operative in Tasmania by 1986–87, in ACT by 1991–92, in SA and NT by 1992–93.

Access to off-the-job courses (non-apprentices)

Most off-the-job trade courses have been funded by the government sector and have been provided by the government TAFE or technical school sector. Each college has traditionally had a large degree of autonomy and central government control rests largely with its power to set funding rules which govern which courses and students qualify for government subsidies.

Trade courses are all accredited courses attracting full government funding. However, the rules or guidelines determining student eligibility vary between States. These rules are important as they affect the access of informally qualified tradespeople to off-the-job courses which may be required to achieve full trade competency.

Whether people who are not apprenticed can study a trade/certificate III TAFE course is largely determined at the individual college level. As data are not collected on the procedures and the practice of these types of course admission, an informal telephone survey was carried out across the six States.

According to sources within the NSW TAFE college sector, there are no institutional barriers to enrolling non-apprentices in NSW but most colleges will give preference to apprentices. Colleges can get student funding for non-apprentices who are working in the trade and accordingly, if vacancies exist, the college will enrol people who are seeking an apprenticeship or are working in the trade. The latter group are not common but there is a steady demand. Since the early 1980s, some colleges have run night courses in a few trades for working adults. Most colleges require some documentary evidence to show that the non-apprentice is employed in the trade as the colleges wish to avoid attracting people who regard the training as a hobby course. The adult night school route to skill acquisition remains a fairly uncharted route.

Victoria has traditionally had fairly restricted access by non-apprenticed students to trade courses. Essentially, non-apprentices had not been permitted to enrol for trade courses until 1975 when 'adult apprenticeships' were created. These provide night time off-the-job classes for adults working in the trade who have had a number of years work experience. However, the trade coverage is small (some building, horticultural, locksmithing and motor mechanics) and available college locations are few. Information on these apprenticeships is currently difficult to locate and are not separately identified in the major apprenticeship and training based documents and web sites.

All enrolments for trade courses in Queensland are handled by the State government agency, Apprentice Allocation. This body will only assign employed apprentices to trade courses but will consider temporarily out-of-trade apprentices as well.

There is currently no rule in South Australia prohibiting TAFE from accepting non-apprenticed students and they usually attract government funding. Night classes for adults (mainly unemployed people, qualified tradespeople who want to multi-skill, and unqualified tradespeople) have been operating in selected trades for over a decade. These courses have been very popular.[51] Until training packages were introduced in the late 1990s, a person unofficially could do a trade course module but they would not receive a trade certificate unless they were apprenticed. Since the packages were introduced, non-apprentices can be officially admitted to day classes but the demand is low. If the student satisfactorily completes the course and acquires enough work experience to pass the practical competencies, they can be awarded the relevant AQF III certificate.

In Western Australia, there are no absolute limitations on non-apprentices enrolling for trade courses, but they would not attract government funding and would be given lower preference to apprentices and pre-vocational course aspirants. College staff who were interviewed believed that the level of demand by non-apprentices for these day-time courses is very low.

[51] One course was closed down after pressure from the related skilled trade union.

Tasmania has for some time admitted unqualified tradespeople into TAFE classes. Over the past 20 years there has been little change in the procedures for accepting non-apprenticed people into trade courses. In some of the metal and electrical trades they will admit unemployed people or people with only a history in the trade for limited types of training in some trades. A few night classes are available but they tend to be the exception. RPL is often granted for experienced workmen. Despite these institutional procedures, there are relatively few non-apprenticed students in these day-time trade courses.

Credits off indenture period (apprentices)

One of the main barriers to adults who want to formalise or complete their trade qualifications is lack of formal recognition given for their existing industry experience. Whether shortened training contracts can be offered up-front to experienced but unqualified tradespeople depends on State training legislation. Victorian legislation has permitted reductions in the indenture term for prior skills and practical knowledge since 1975. Subsequently, these have been introduced into New South Wales (1989), Queensland (1991) and South Australia (1994). Western Australia and Tasmania have yet to formally legislate on this matter; however, credits for prior education or work experience have been included in Western Australia regulations since the early 1980s.

Credits giving course exemption (apprentices)

Since 1992, it has been possible in the TAFE system[52] for apprentices to qualify for an exemption based on prior course qualifications or work experience. Exemption or 'recognition' is granted on the basis of skills and competencies gained through work experience, voluntary work, social duties, information training and formal training. Exemptions have also been given since the 1970s to apprentices who complete a pre-trade course.

Conclusion

Until 1980 only a few legislative impediments which inhibited the flexibility of trade training system existed and, by 2000, almost all of these had disappeared. Some barriers may remain encoded in regulations.

Prior to the process of award restructuring which began in the late 1980s, wage and job classification structures and the work culture in many firms were not designed to encourage workers to upgrade skills through ongoing training courses. Few opportunities existed for unskilled and semi-skilled workers to progress through to skilled status and beyond. Evidence from the 1990s indicates that more than half of large firms had made some attempt to introduce job classification structures conducive toward career paths and training. By 1990, one in four firms with more than 20 employees, whose main occupation group was tradespeople, had introduced career paths, and between one in three and one in five firms had introduced formal training where previously none had existed. Structures, especially in the metal trades, were established to support adult apprenticeships and training pathways for sub-trade level workers.

Aside from legislative and award provisions, the training pathway for skilled manual workers can be blocked at several other junctures. An examination of the formal recognition procedure, for people who had acquired the required level of competencies, and the processes for allowing partially skilled people to complete the skill process (access to off-the-job courses, credits of indenture terms and recognition for prior learning), reveal that this pathway is more of a windy and unsignposted track than a clear channel. Many of the courses and accreditation processes are semi-unofficial, ad hoc and not widely advertised. The TRRA,

[52] Including other non-TAFE formally recognised course providers.

State and Territory recognition legislation are best known and most established. However, these appear to supply, at most, only 3–4% of recognised domestically trained tradespeople. A comparison between Queensland and other States is revealing. Lack of co-ordination among relevant training parties, pecuniary incentives by the RTO to recognise existing skills and provision of information to workers and employers in the more fragmented parts of industry appear to have hindered the formal skill accumulation process in some States.

The low importance of these methods for allowing non-apprenticed people to supplement their skills and acquire full AQF-III status is epitomised by absence of any serious data collection on this issue.

The next chapter looks at the relative propensity of experienced adults to follow these embryonic career paths and the following two chapters examine the incentives, both pecuniary and non-pecuniary, to obtain a trade qualification and remain in the trade.

4 The incidence of adult trade training

Introduction

Chapter 3 considered some of the major institutional and legal factors impeding training pathways for unskilled and semi-skilled people working in manual jobs. It was found that while there were relatively few prohibitions on adults receiving skilled vocational training, provisions to encourage and enable such training have been relatively ad hoc. Pathways have applied only in a few trades or in a few locations.

This chapter looks at information which indicates whether or not these reforms to training have translated into more fluid and sequential occupational pathways in the manual trade areas. Having looked at the existence of institutional or legislative barriers and positive provisions for training pathways, times series data is presented on:

- the incidence of training among production (blue collar) workers
- the number of apprentices or people who are undertaking skilled vocational education receiving RPL
- the number of adults in trade training
- the number of people who were formally upgraded as adults working in the trades

Six main data sources, which cover differing time periods with differing levels of regularity are used to draw a picture of how popular these training pathways for adults have become.

Some of the data are only available as a single time period cross-section and the comparison in this case is with other occupations requiring post-school qualifications. Most of the time series data will only reveal trends due to from 1989 to the mid-1990s. The slow diffusion of information on training reforms and the length of time required for firms to change their human resources management systems in industry suggests that it is too early to detect effects from the New Apprenticeship reforms of 1998.

The incidence of training

Training for production workers since 1989

It is difficult to find evidence from the existing literature on the extent to which careers paths have been pursued by workers in these industries. Most studies concentrate on the early award restructuring period and accordingly focus on the preliminary issues such as broadbanding and union amalgamation.

The literature which addressed issues such as training and career paths is more limited. Still and Mortimer (1996) for example, surveyed 142 firms with over 200 employees in 1990–91[53] regarding the effects of award restrictions on career path development and reform to the processes of training. Large firms were more likely to have reported an effect from award restructuring. Over half of companies with more than 400 employees supported award restructuring but only one in five claimed that it resulted in more knowledgeable and skilled

[53] A response rate of 21% was achieved.

staff. Sixteen per cent of firms reported that award restructuring had affected the categories of employees who had actually received training. However, the main groups to benefit were managers and supervisors.

By 1990, Curtain and Mathews (1990, p.67) thought that perhaps only 10% of Australian firms would have introduced comprehensive reforms to the skill formation process.[54] In 1992, the National Key Centre in Industrial Relations at Monash University (Curtain et al. 1992; Boxall et al. 1992) undertook 33 workplace case studies to assess the impact award restructuring had had on workplace reforms. They found that most manufacturing and public sector organisations had made some attempts to reduce award classifications, enhance multi-skilling, introduce career paths, improve training and reduce demarcation (Curtain et al. 1992, pp.2–3). However, because of the long time implied in these changes, most of these reforms were still incomplete by 1992.[55] Nevertheless, most firms had developed an enterprise agreement to facilitate reform.

The AWIRS data gives limited information from 1990 and 1995. Table 28 presents a comparison of the extent to which firms have offered tradespeople or plant and machine operators formal training. The full sample of firms reported that 43.8 and 42.2% of firms in 1990 and 1995 respectively, had furnished their tradespeople with formal training (excluding on-the-job-training, conferences and apprenticeship training) over the previous year. However, if the sample is limited to firms whose main workforce were tradespeople, the respective percentages rise to 49.3 and 59.7, implying a ten percentage point increase over the five-year period.

The formal training rate for plant and machine operators was lower, but in both samples exhibited a strong rise. In the full sample, the percentage rose from 25.7 in 1990 to 30.1 in 1995. Some of this rise in formal training may have been attributable to the Training Guarantee Levy as well as the award restructuring process.

Training and career-related information was also gathered directly from employees, but only for the year 1995. The potential for comparison is weakened because there is only one year's data but a distinction can be made between types of employees. Table 29 shows that workers with a basic vocational qualification were slightly more likely than the average employee to have received employer-provided training and a pay rise because of age, service or promotion. On the other hand, employees with a skilled vocational qualification were less likely to have received either training or a pay rise through age, service or promotion but more likely to receive bonuses and incentives. Employees with only a secondary education were very close to the average for all employees.

However, if the same data are examined by occupation (table 30), it is found that both plant and machine operators and tradespeople and apprentices are both a little less likely than average to receive employer-provided training and pay rises due to age, service and experience. They are however slightly more likely to receive bonuses and incentives.

Both sets of data support the notion that, compared with other occupations, the rewards for experience and other career-related benefits are considerable lower for the trade and trade-related workers.

The ABS Education and Training Surveys (1989, 1993 and 1997)[56] give three successive summary snapshots of the incidence of training. Table 31 shows the incidence of training for persons employed in one of the production-based occupations where trades-based employment is most common (that is, the three broad occupation groups: tradespersons; plant and machine operators and drivers; and labourers and related workers). The table also distinguishes between people who possessed formal skilled vocational qualifications and those without.

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[54] These were thought to be firms most exposed to trade competition.
[55] Macken (1989, p.77) said in 1989 that there was a 'plain need for the development of training courses particularly pitched to the non-trades areas'.
[56] For a summary of the Education and Training Surveys, see appendix B.

Table 28: Percentage of firms offering formal training programs for employees by occupational group; excludes on-the-job training, conferences, apprentice training, Australia, 1990, 1995

Occupational group	All firms		Firms whose main occupational group was tradespeople	
	1990	1995	1990	1995
Managers	41.5	78.8	28.6	36.1
Professionals	39.4	60.3	24.8	22.7
Para-professionals	41.6	59.1	23.8	28.2
Tradespersons	*43.8*	*42.2*	*49.3*	*59.7*
Clerks	39.0	73.7	24.0	37.0
Sales workers	23.6	40.9	17.9	14.4
Plant and machine operators	*25.7*	*30.1*	*10.6*	*18.5*
Labourers	28.3	39.0	18.8	24.5
None	25.5	18.6	38.7	29.6
Total number of firms in sample	**2004**	**2001**	**241**	**216**

Note:
Excludes firms with less than 20 employees; firm level data have been weighted by employee size.

Source:
Australian Workplace Industrial Relations Survey, 1990, 1995, Employee Management Relations questionnaire

Table 29: Percentage of employees within each educational group who received career related benefits last year, Australia, 1995

Highest level of education	Received employer-provided job training	Received bonuses or incentives related to job performance	Received a pay rise because of age, service or promotion
Primary school	44.7	15.0	20.5
Year 10 or year 11	54.7	20.1	30.1
Completed secondary	*61.9*	*20.8*	*39.3*
Basic vocational qualification	*67.1*	*16.9*	*40.1*
Skilled vocational qualification	*54.2*	*23.9*	*29.2*
Assoc. diploma/advanced certificate	65.2	19.1	38.1
Undergraduate degree/diploma	71.8	18.9	43.8
Postgraduate degree/diploma	67.8	15.2	37.7
Other	60.6	18.4	35.2
Total	**61.1**	**19.6**	**35.4**

Note:
Sample = 19 155. Data have been weighted by sex, occupation and workplace size.

Source:
Australian Workplace Industrial Relations Survey, 1995, Employee Survey

Table 30: Percentage of employees within each occupational group who received career-related benefits, Australia, 1995

Occupation group	Received employer-provided job training	Received bonuses or incentives related to job performance	Received a pay rise because of age, service or promotion
Labourers & related	46.0	16.9	23.8
Plant & machine operators	54.9	22.9	26.4
Sales & personal service workers	63.2	20.3	37.0
Clerks	63.4	17.7	39.4
Tradespersons & apprentices	49.7	23.1	28.8
Para-professionals	68.5	13.4	37.3
Professionals	70.8	15.5	41.5
Managers	68.4	41.6	48.9
Other	56.2	14.1	29.3
Total	**61.1**	**19.6**	**35.4**

Note:
Sample = 19 155. Data have been weighted by sex, occupation and workplace size.

Source:
Australian Workplace Industrial Relations Survey, 1995, Employee Survey

Table 31: Percentage of production workers* receiving training by type of training, Australia, 1989, 1993 and 1997

	All persons			Males only		
	1989	1993	1997	1989	1993	1997
With formal skilled vocational qualifications						
Formal training	31.7	22.0	43.2	31.7	22.1	43.8
Informal (on-the-job) training	63.8	73.5	66.0	63.9	73.5	65.9
Currently studying for a vocational qualification	1.2	2.1	3.8	1.2	2.1	4.0
Without formal skilled vocational qualifications						
Formal training	18.8	16.1	29.1	21.1	17.8	30.5
Informal (on-the-job) training	62.7	70.5	62.4	65.9	73.5	64.9
Currently studying for a vocational qualification	1.3	6.3	7.0	1.3	7.4	8.5

Notes:
The base population is persons with a wage or salary job in last 12 months, excluding secondary school students.
*Occupation of their main-period job was either: tradesperson, plant and machine operator and driver, or labourers and related worker.

Sources:
ABS, How Workers Get Their Training Survey 1989, unpublished data; ABS, Survey of Training and Education 1993, unpublished data; ABS, Survey of Education and Training Experience 1997, unpublished data

A number of distinct patterns in training incidence are apparent. First, after declining markedly between 1989 and 1993, the incidence of formal training (that is, participation in structured in-house and external training courses) rose during the period 1993 to 1997, and by the end of the period stood at much higher levels than eight years earlier. Such patterns are also suggestive of a pro-cyclical pattern to the incidence of formal training, falling as output

and demand declines and rising as output and demand rises. Note also that the incidence of such training is more widespread among workers with qualifications. At one level this may seem surprising given that these workers have already undertaken substantial training in the past and thus presumably are in less need of further training. Need for training, however, is a function not just of exposure to training in the past but also the nature of the current job. Training rates may be higher for these workers because they are working in much more training-intensive jobs. Despite these differences in gross training rates, however, the underlying trend is common to both qualified and unqualified worker groups.

Second, and in stark contrast to the trend for formal training, after rising during 1989–93, the incidence of participation in informal training activities fell during 1993–97, although in this case the incidence of training by 1997 stood at levels either equal to or only slightly above those observed in 1989. Again, this pattern was common to both the qualified and unqualified workers.

While *a priori* it is difficult to predict how training rates might vary with the business cycle, *ex post* these two trends appear entirely sensible and presumably reflect changes in the relative costs of and benefits from different types of training. With declining demand, businesses will come under pressure to reduce costs, leading to a decline in those training activities that add to overall business expenditure. The only significant cost of informal training however, is the cost of workers' time, and this will tend to decline during periods of economic downturn. Hence given the presence of slack labour resources, it is entirely reasonable for firms to substitute the now relatively inexpensive informal on-the-job training in place of the relatively more expensive formal types of training. Once economic opportunities improve, however, firms are much more likely to re-implement training practices that are designed to enhance the long-run productive potential of the workforce.[57]

Table 31 also reveals a marked rise in the incidence of employees undertaking vocational study. In this case, however, the growth occurred during 1989 and 1993, and there was no subsequent reversion to the much lower levels of the late 1980s. As would be expected, this rise was most pronounced among those workers without vocational qualifications.

The patterns shown in table 31 are generally consistent with claims that initiatives introduced in the late 1980s and early 1990s as part of award restructuring and training reform would produce positive effects in terms of increasing training effort. This is most directly reflected in the rising proportion of unskilled workers seeking skilled qualifications, but is also reflected in the much higher incidence of formal training generally. Finally, given the emphasis here on male-dominated trades, results are for men only.[58] The exclusion of females, however, had very little effect on the patterns summarised above.

To verify that the trends observed in table 31 are indeed the result of changes in behaviour rather than changes in the characteristics of workers and jobs, logit regression analysis of the incidence of the three types of training was undertaken. The selection of explanatory variables was based, as far as possible, on research reported in Wooden et al. (2001, chapter 3). The current analysis, however, is different in that data from each of the three surveys were pooled and hence variable selection was constrained by the requirement that data on each explanatory variable be available in each year. Data on union membership and language difficulties, for example, were not collected in 1989 and hence these variables were not included in the model estimated here. Additionally, only people employed in the production-based occupation groupings have been included.

A summary of the regression results is reported in table 32. Each of the three explanatory models turns out to have excellent power and, for the most part, the sign and magnitudes of the estimated co-efficients are consistent with expectations and in line with previous empirical

[57] Such cyclical variations are similar to the widely observed pro-cyclical variations in physical investment.

[58] The available data do not allow us to separately identify persons working in the four main trade areas that are of central interest to this study.

studies that have used these data (for example, Baker & Wooden 1991; 1992; Miller 1994; VandenHeuvel & Wooden 1996; Wooden 1996; Wooden et al. 2001).[59]

The key finding of interest relates to the time dummies. Consistent with the results reported above in table 31, the results confirm that, even after controlling for worker characteristics, there have been marked changes over time in the incidence of training. Specifically, the incidence of formal training in 1997 was twice that in 1989, while participation in vocational study increased more than sixfold. Only with respect to informal on-the-job training has participation not increased over time. While it rose sharply during the recession of the early 1990s, it subsequently fell and by 1997 its incidence was not significantly greater than in 1989.

Table 32: Logit regression results explaining the determinants of training

Characteristic	Exp (Logit)		
	Formal training	On-the-job training	Study for a vocational qualification
Year			
1989	0.51**	0.93	0.14**
1993	0.42**	1.77**	0.92
1997	1.00	1.00	1.00
Age			
15–19	0.92	2.00**	6.80**
20–24	1.02	2.24**	2.36**
25–29	0.03	1.30**	1.40
30–34	0.98	1.18**	1.09
35–39	1.00	1.00	1.00
40–44	1.01	0.87**	0.88
45–49	0.84*	0.68**	0.47*
50–54	0.66**	0.56**	0.09**
55–64	0.44**	0.37**	0.11**
Sex			
Male	1.00	1.00	1.00
Female	0.90	0.90*	0.88
Marital status			
Single	1.00	1.00	1.00
Married	1.18**	0.94	0.67**
Presence of dependent children (if male)			
Dependent children, age < 3	1.01	0.96	1.08
Dependent children, age 3–4	1.18	1.06	0.93
Dependent children, age 5–9	0.91	0.94	0.78
Dependent children, age 10–14	1.07	0.94	0.86

[59] Note that for ease of interpretation we report not the actual estimated co-efficients but the exponents of these parameter estimates. The reasoning here is that in a logit specification the exponent of the estimated co-efficient provides a predicted odds ratio. Thus in table 32, the value 0.50 on the 1989 time dummy in the formal training model indicates that, all other things constant, the probability of a worker participating in formal training in 1989 was only 50% that of participating in 1997 (the control year).

Table 32: Logit regression results explaining the determinants of training (cont.)

Characteristic	Exp (Logit)		
	Formal training	On-the-job training	Study for a vocational qualification
Presence of dependent children (if female)			
Dependent children, age < 3	0.75	0.98	0.36
Dependent children, age 3–4	0.39**	1.04	1.18
Dependent children, age 5–9	0.92	0.95	1.41
Dependent children, age 10–14	0.95	0.97	0.98
Educational attainment			
Postgraduate degree/diploma	6.56**	1.70	1.69
Undergraduate degree/diploma	1.81**	2.30**	0.81
Skilled vocational qualification	1.44**	1.41**	0.52**
Basic vocational qualification	1.34**	1.60**	1.43*
Finished secondary school	1.00	1.00	1.00
Left school at 16–18 years	0.85*	1.11	0.86
Left school before 16 years	0.67**	0.91*	0.49**
Highest post-school qualification obtained o/seas			
Yes	0.87	0.77**	1.37
No	1.00	1.00	1.00
Country of birth			
Australia	1.00	1.00	1.00
Overseas, main English-speaking country	1.06	1.08	1.01
Overseas, other	0.50**	0.77**	0.71*
Job tenure			
Less than 1 year	0.82*	1.43**	1.02
1 to <2 years	0.82**	1.09	1.06
2 to <5 years	1.00	1.00	1.00
5 to <10 years	0.97	0.86*	0.82
10 or more years	1.13*	0.99	1.36
Occupational experience			
Less than 1 year	1.17*	2.04**	0.76*
1 to <2 years	1.37**	1.75**	0.88
2 to <5 years	1.00	1.00	1.00
5 to <10 years	1.13	0.96	0.47**
10 to <20 years	1.04	0.82**	0.46**
20 or more years	0.97	0.84**	0.80
Hours of work			
Less than 15 hours	0.69**	0.42**	0.69*
15 to 29 hours	1.05	0.86*	0.95
30 to 40 hours	1.00	1.00	1.00
41 to 48 hours	1.24**	1.15*	0.98
49 hours or more	1.42**	1.21**	0.95

Table 32: Logit regression results explaining the determinants of training (cont.)

Characteristic	Exp (Logit)		
	Formal training	On-the-job training	Study for a vocational qualification
Employment status			
Casual	0.64**	0.78**	0.34**
Permanent	1.00	1.00	1.00
Working at time of the survey			
Working	1.00	1.00	1.00
Not working	0.81**	0.59**	0.63**
Industry (of main period employer)			
Agriculture, forestry, fishing and hunting	0.81*	0.93	1.08
Mining	1.91**	1.22	1.13
Manufacturing	0.73**	1.01	0.94
Electricity, water and gas	1.54**	1.23	1.94**
Construction	0.79**	1.04	1.95**
Wholesale and retail	1.07	0.89**	0.89
Transportation and storage	0.90	0.82**	0.52**
Other	1.00	1.00	1.00
Firm size			
Less than 10 employees	1.06	1.21**	1.78**
10 to 19 employees	1.00	1.00	1.00
20 to 99 employees	1.83**	1.21**	1.30*
100 or more employees	2.58**	1.21**	1.27
Sector			
Private	1.00	1.00	1.00
Public	1.70**	1.15**	1.31
Nagelkerke R-squared	0.190	0.200	0.265
Model chi-square	2620.65	3022.46	1518.26
Prediction success (%)	77.5	70.3	96.1
Reduction in prediction error (%)	36.1	35.0	51.2
(n)	19303	19303	19303

Notes:

1. The population for this analysis was restricted to persons with a wage or salary job during a 12-month reference period, who were not also secondary school students, and who worked, in the job with their main-period employer, in any of the following broad occupation categories: tradesperson, plant and machine operator and driver, or labourer and related worker.

2. ** and * indicate significance at the 1% and 5% levels respectively in a two-tailed test.

3. The Nagelkerke R-squared is a measure of proportion of variance accounted for by the model. Values of around 0.2 and above are considered a good fit.

Recognition of prior learning

Comparative recognition

One of the most pertinent forms of recognition for existing knowledge for adult workers is recognition for skills acquired through normal work experience. It is necessary to distinguish between RPL for pre-apprenticeship courses (arguably now a common form of youth entry into skilled vocational training), RPL for other courses and RPL for work experience. The 1997 ABS Survey of Education and Training only presents data for one period but can distinguish between types of RPL.

ABS data on the incidence of RPL are restricted to those persons currently studying (that is, during 1997) for a qualification and for this analysis we further restrict the population of interest to persons currently employed in production-based occupations who were studying for a vocational qualification. This is a relatively small population (covering about 167 000 workers).[60] These data, therefore, preclude information on the extent to which RPL may have assisted workers who are no longer involved in study to acquire vocational qualifications in previous years.

As reported in table 33, the data reveal that within this admittedly small group, the proportion of people studying for a skilled vocational qualification who had received some form of recognition for previous study was low compared with other major forms of post-school study. Only 9.2% had received recognition for some form of prior TAFE study (many of these will be for a pre-trade[61] course) compared with over 12% for other vocational forms of education (undergraduate diplomas and basic vocational certificates[62]). While it is not surprising to find a low level of recognition for other forms of study such as university courses, the rate of recognition for work experience was the lowest of all categories of post-school education. Admittedly, the sample size is very small and this estimate will be subject to a high standard error. Nevertheless this is a striking result given the manual nature of many required trade skills.

This low incidence of recognition for work experience skills is also found among production workers enrolled in vocational study—just under 6% received any such recognition for their previous experience or skills acquired in work. It would thus appear that the principle of RPL, at least when it comes to vocational programs, and skilled vocational programs in particular, has yet to be extended in any significant way to on-the-job learning.

Whether the group who received RPL for prior study were distinct in any obvious ways from those who do not was examined. The major difference relates, not surprisingly, to exposure to previous study. First, RPL is relatively common among people who have previously not completed (but presumably started) a course. As reported in table 34, of those workers doing skilled courses receiving recognition for previous study, about 31% had been enrolled in other post-school study courses during the preceding five years but had *not completed* the course. This compares with just 9% among those not receiving any RPL. Similarly, among those who were enrolled in basic vocational courses and who had received RPL, 26% had a recent history of non-completion of education study, compared with 10% among those without RPL.

Second, and again as we would expect, RPL is more likely where the worker has previously completed courses of study. Indeed, perhaps the most intriguing feature of table 34 is the relatively large number of production workers engaged in study who have already completed some previous course of study. Of those enrolled in a skilled vocational course, for example,

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[60] Comprising 103 000 enrolled in courses leading to a skilled vocational qualification and 64 000 enrolled in courses leading to a basic vocational qualification.

[61] Pre-apprenticeship or pre-vocational course.

[62] Basic vocational qualifications include qualifications from formal courses between one and two semesters in length.

almost 10% already possessed a skilled vocational qualification, the large majority of whom (70%) received RPL. Such findings are suggestive of a reasonable degree of mobility across the trades.

Table 33: Incidence of recognition of prior learning (percentage of production workers* enrolled in educational study in 1997)

Type of course enrolled in	Type of RPL			Not received RPL
	Previous technical/ TAFE study	Previous university & other study	Existing skills and experience	
Bachelor degree	6.0	21.8	3.9	72.5
Undergraduate diploma	14.3	14.9	9.9	63.4
Skilled vocational qualification	*9.2*	*5.2*	*2.5*	*83.3*
Basic vocational qualification	12.4	5.7	7.5	78.7
All production workers* who are studying for post-school qualifications**	11.0	7.2	5.5	78.3
All post-school qualifications**	8.9	15.7	5.4	73.3

Notes:
*Includes tradespeople, plant and machine operators and labourers and related workers.
**Includes post graduate degree and diploma, bachelor degree, undergraduate diploma, associate diploma, skilled vocational qualification and basic vocational qualification.

Source:
ABS, Survey of Education and Training Experience 1997, unpublished data

Table 34 also shows that a relatively large number of qualified persons undertaking courses of study lead to a basic vocational qualification. In total 48% of this group possessed some form of post-school qualification, and again the incidence was higher among those receiving RPL—65% compared with 43%.

Table 34: Selected characteristics of production workers enrolled in vocational study by type of study and whether RPL for previous study received (%)

	Enrolled in study leading to:			
	Skilled vocational qual.		Basic vocational qual.	
	Received RPL for study	*Did not receive RPL for study*	*Received RPL for study*	*Did not receive RPL for study*
Enrolled in previous post-school study but did not complete	31.3	8.8	26.0	9.8
Educational qualifications				
Diploma/degree	2.4	0.7	8.4	7.0
Skilled vocational qualification	21.7	7.7	28.9	17.3
Basic vocational qualification	11.1	4.6	27.3	19.0

Source:
ABS, Survey of Education and Training Experience 1997, unpublished data

TAFE course exemptions

Separate data on the prevalence of RPL for TAFE course exemptions are available from NCVER and a short time series is presented in figures 2 to 10. These data exclude apprentices

who complete a pre-trade course and include assessed skills acquired through work experience or other forms of study.[63]

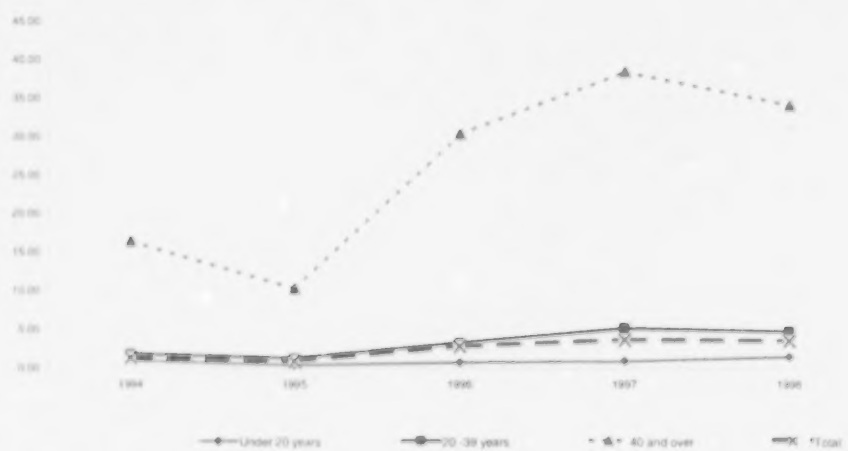
Figures 1 to 10 indicate that for the major trade groups under consideration, RPL accounted for under 5% of all enrolments over this period. However, in each of the four major trade groups there is a small but positive trend. In the metal, building and vehicle trades, students over the age of 40 were much more likely to be granted RPL, but in each case, these older students were a very small percentage of the total trade students. In the metal trades the percentage of students over the age of 40 receiving RPL rose from 16% in 1994 to 34% in 1998. In the building trades it rose from 1.5 to 3% and in the vehicle trades it rose from under 1% in 1994 to 8% in 1996.

Only in the electrical trades were 'middle aged' students, between 20 and 39 years of age, the group most likely to have gained RPL. Nevertheless, the percentage of students over the age of 40 receiving RPL rose from under 1% in 1994 to 7% in 1998. Unfortunately, it is not possible to discern whether the RPL has been due to prior work experience or past successful course completion (other than a pre-apprenticeship or pre-vocational course).

This pattern is repeated for the associate professional (technician) and professional level courses.[64] According to figures 5 and 7 RPL has been granted to between 5 and 10% of enrolments for both the associate professional and professional occupations over the 1994 to 1998 period. While the discontinuity in the series prevent a trend analysis, RPL was most often granted to the over 40-year-old group. About seven in ten associate professional and four in ten professional enrolments in the age groups received RPL.

In sum, the very short NCVER time series suggests that the incidence of RPL is rising but from a very low 1994 base.

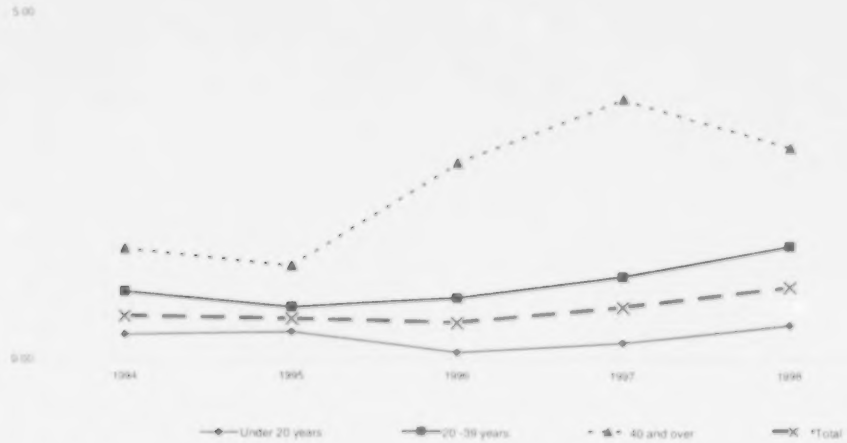
Figure 1: Percentage of metal trade TAFE module enrolments receiving recognition for prior learning by age, Australia, 1994–98



Source:
NCVER, unpublished data

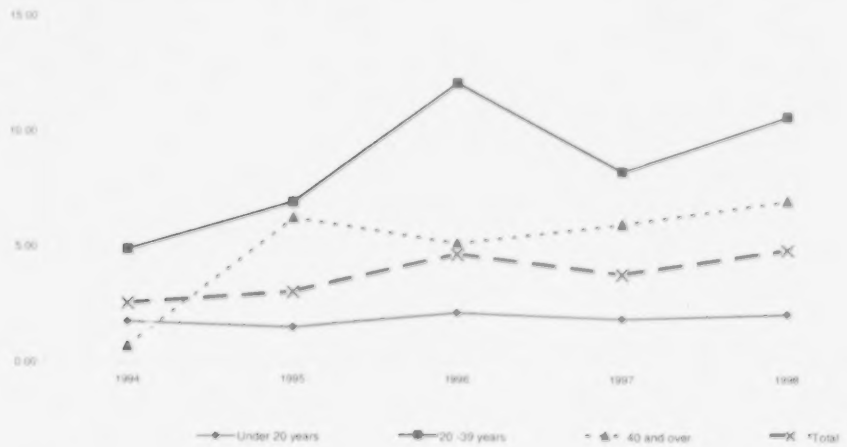
[63] Pre-trade exemptions are called 'credit transfers'.
[64] Note however the large discontinuity in the series between 1996 and 1997.

Figure 2: Percentage of building trade TAFE module enrolments receiving recognition for prior learning by age, Australia, 1994–98



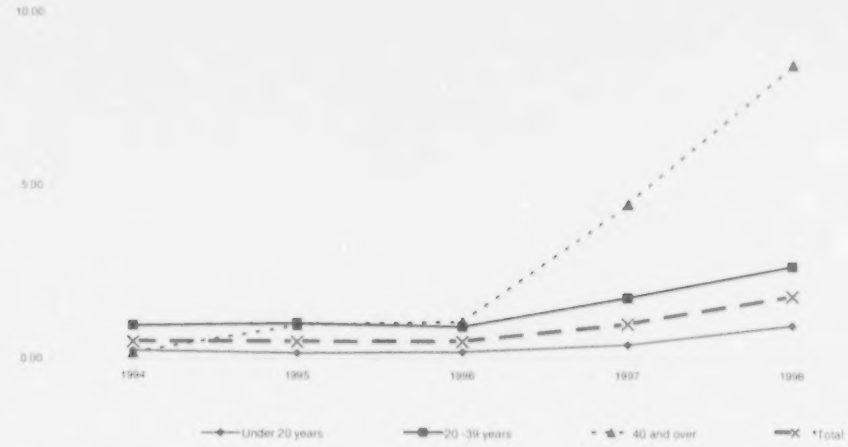
Source:
NCVER, unpublished data

Figure 3: Percentage of electrical trade TAFE module enrolments receiving recognition for prior learning, by age, Australia, 1994–98



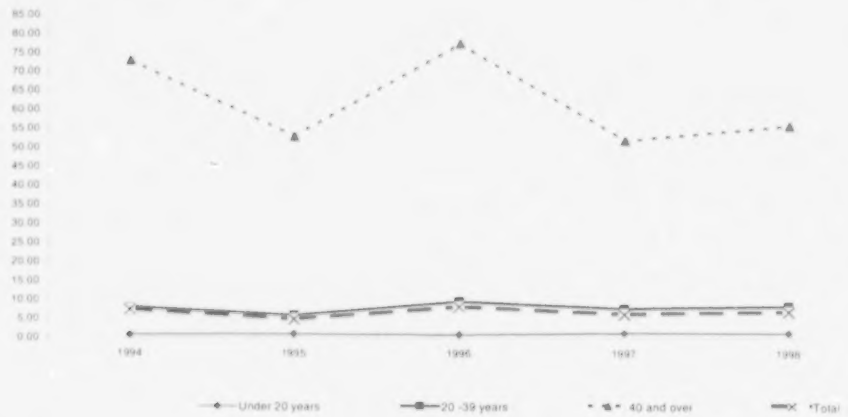
Source:
NCVER, unpublished data

Figure 4: Percentage of vehicle trade TAFE module enrolments receiving recognition for prior learning, by age, Australia, 1994–98



Source:
NCVER, unpublished data

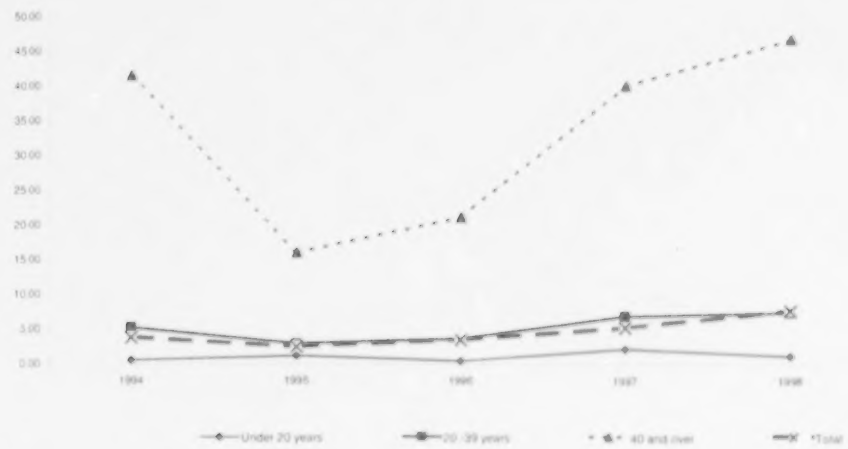
Figure 5: Percentage of engineering and related technicians TAFE module enrolments receiving recognition for prior learning, by age, Australia, 1994–98



Note:
From 1994 to 1996 this included engineering and building associates and technicians; from 1997 to 1998 it included science, engineering and related associate professionals.

Source:
NCVER, unpublished data

Figure 6: Percentage of engineering and related professional TAFE module enrolments receiving recognition for prior learning, by age, Australia, 1994–98



Note:
From 1994 to 1996 this included building professional and engineers; from 1997 to 1998 it included science, building and engineering professionals.

Source:
NCVER, unpublished data

Indenture period reduction

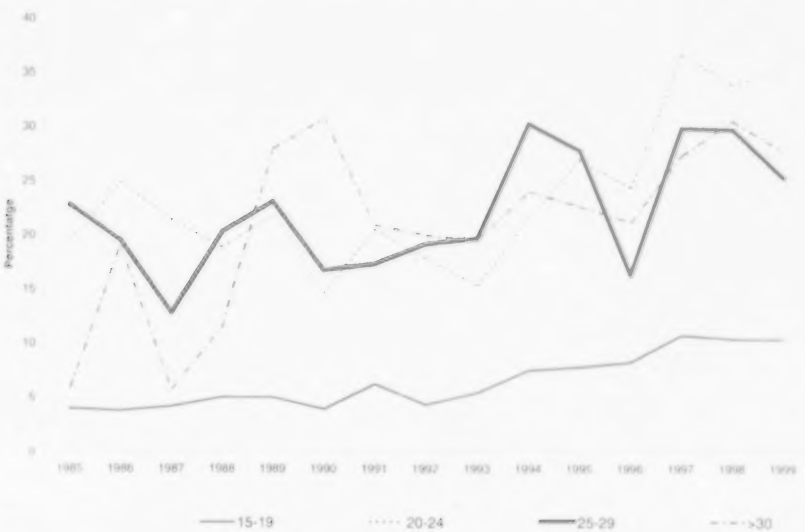
There are no national collections of the number of apprentices whose prior learning other than pre-trade courses (formal course completion and work experience) allows them a reduction in the term of their indenture or training contract. Nevertheless, some ad hoc State data collections exist although some collections include pre-trade course exemptions.

New South Wales collects data on the number of new apprentices (by trade) who have received prior recognition for the purposes of the indenture period. Figure 7 shows a strong positive trend in the proportion of new apprentices who are granted some time reduction in the four main trade groups (metal, building, electrical and vehicle).

Because many of these exemptions have been granted due to the completion of a pre-apprenticeship program, the data have been examined by age. Figure 8, which provides a breakdown by age, shows that adults over 20 years of age are more likely to receive recognition than juniors. There has been an increase in the proportions receiving recognition since 1985 for all age groups. While it is expected that most pre-trade course credits for 15–19-year-olds will be for pre-trade courses, this is less likely for the older apprentices. Some of the overall increase in the proportion of apprentices receiving recognition is due to the shift toward older apprentices rather than an increasing propensity to acquire RPL.

Figure 7: Percentage of new apprentices receiving time credits off training period for prior experience, metal, building, electrical and vehicle trades, NSW, 1985–2000 (May)

Figure 8: Percentage of new apprentices who have received time credits for prior experience by age, metal, building, electrical and vehicle trades, NSW, 1985–2000 (May)



Victoria does not collect data which are comparable to that of New South Wales. The main relevant data source available is the number of new apprentices who were previously employed by their employer. Unfortunately this series only begins in 1998 and two data points cannot provide enough information to deduce a trend. Nevertheless, table 35 reveals that the percentage of new apprentices who were previously employed by the firm has risen from 1.3% in the eight months to February 1999 to 4.9% for the same period to February 2000.

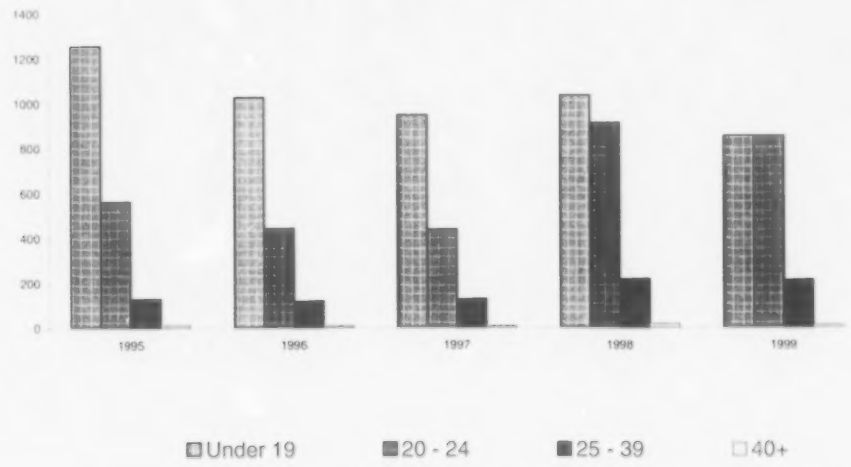
Table 35: Percentage of new apprentices and trainees who were previously employed by the business or organisation, Victoria

2 digit ASCO (2nd edition)	July 1999–February 2000	July 1998–February 1999
(Old) Apprenticeship		
Automotive	2.7	1.1
Construction	1.6	0.6
Electrical	14.9	1.7
Mechanical and fabrication	8.2	1.5
Total	**4.9**	**1.3**
(Old) Traineeship		
Automotive	0.0	0.0
Construction	0.0	0.0
Electrical	3.8	0.0
Mechanical and fabrication	63.2	78.3
Total	**22.0**	**23.6**

Source:
Office of Post-Compulsory Education Training and Employment, Victoria, unpublished data

Data from Queensland presented in figure 9 show that between 1995 and 1999 there has been a positive increase in the number of new adult apprentices who have gained prior recognition.

Figure 9: Numbers of new apprentices receiving time credits off training period for prior experience by age, all trades, Queensland, 1995–99



Western Australia cannot separate pre-trade exemptions from work experience exemptions. Nonetheless, officers from the WA apprenticeship authority believe that most of the growth over time in indenture credits shown in figure 10 has been for successful completion of a pre-apprenticeships course. Most of the growth in credits in WA has been for 15–19-year-olds. However, as shown in figure 11 there has been some growth in the numbers of adults receiving these type of credits also and these are most likely to have been for prior experience.

Figure10: Percentage of new apprentices receiving time credits for prior education and experience, metal, building, electrical and vehicle trades, Western Australia, 1988–99

Figure11: Numbers of new apprentices receiving time credits for prior education and experience, metal, building, electrical and vehicle trades, Western Australia, 1988–2000 (May)

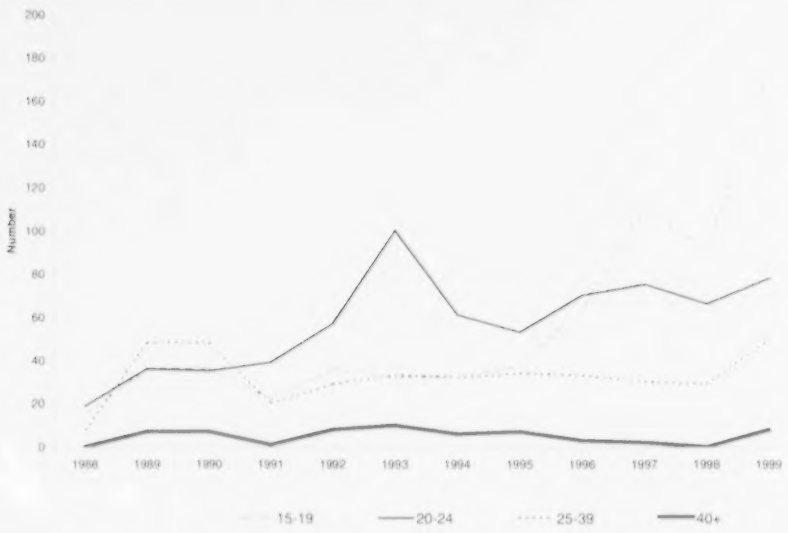
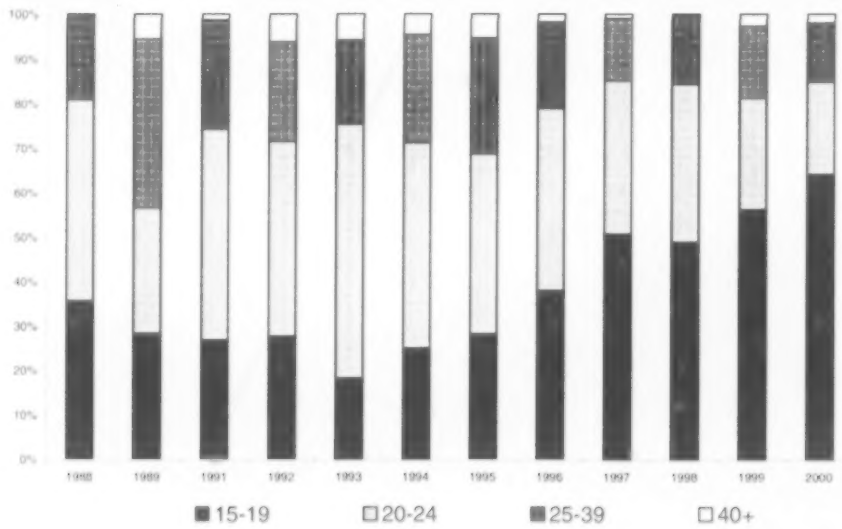


Figure 12: Percentage distribution of new apprentices who have received time credits for prior education and experience, metal, building, electrical and vehicle trades, Western Australia, 1988–2000 (May)



Finally, Tasmanian data presented in table 36 indicate that there has been a clear growth in the number of apprentices who have been granted indenture reductions for reasons of prior service. This information was not available by age or trade. No data have been forthcoming from the relevant South Australian training body.

Table 36: Reduction in period of contract of training for apprentices by reason, Tasmania, 1989 to 2000

Year of termination	Competency-based training	Efficiency	Pre-trade	Previous service	Total
1989		97			97
1990	2	152			154
1991		198			198
1992		274		4	278
1993	7	254		32	293
1994	3	205		51	259
1995	6	198		88	292
1996	3	242		110	355
1997	8	285		91	384
1998	48	229	3	102	382
1999	53	227	4	72	356
2000	5	28	1	7	41
Still in training	17	7	18	153	195
Total	**152**	**2396**	**26**	**710**	**3284**

Note:
Based on data available on 15 March 2000.

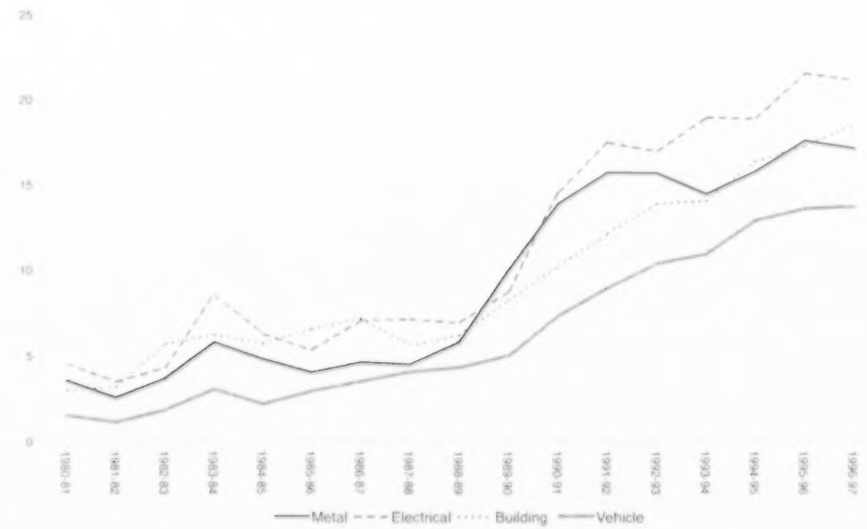
Source:
Office of Vocational Education and Training, Hobart

To summarise, there appears to be a general positive trend over the past decade relating to the number of adults receiving recognition (either to reduce the term of their indenture or to obtain exemptions for TAFE courses) for prior skills acquired through work experience. However, the percentages involved are very small. Estimation lacks robustness through the lack of consistent national annual data which can distinguish different forms of recognition. However, a guestimate that 5% of all people studying for a skilled vocational qualification receives experience-based RPL is considered to be reasonable. It is not possible to judge from the data what factors have led to this low level of recognition—low in both absolute terms given the number of informally upgraded tradespeople and relative to other qualifications. It may be due to the difficulty of acquiring recognition for work experience skills or the lack of incentive for experienced workers to obtain formal qualifications (such as other impediments within the institution of skilled vocational training which make it unattractive for experienced workers, lack of employer interest, lack of pecuniary reward). Alternatively, it is possible that because RPL students attract lower funding for their college from the training authorities, the college understates the true level of students who would otherwise qualify for RPL.[65]

Adults acquiring skilled vocational qualifications

Data on the age of apprentice upon commencement of the indenture reveal a strong rise in the proportions of adults across the four major trade groups since 1980–81. As shown in figure 13, this rate of increase was particularly marked in the early 1990s, the immediate period after the implementation of award restructuring. The electrical trade have the highest rates of adult apprentices (at 21.1% in 1996–97) and vehicle trades the least (13.7%).

Figure 13: Percentage of apprentice commencements over the age of 21 years, Australia



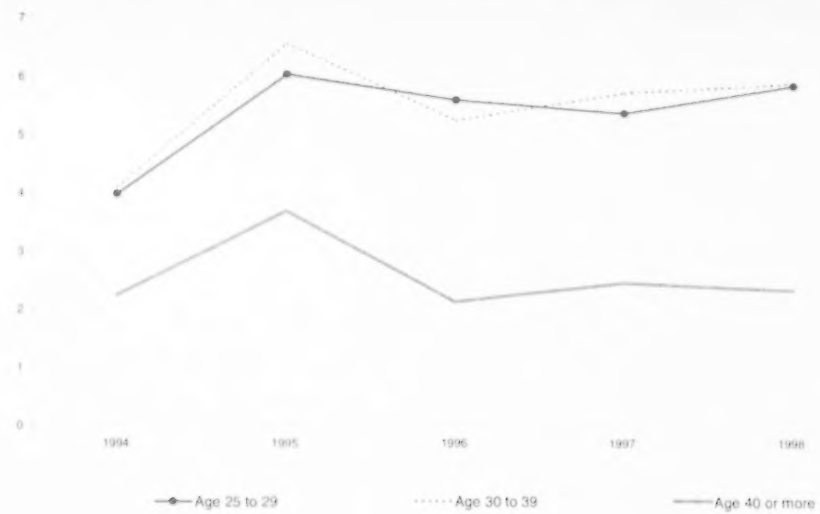
Source:
NCVER, unpublished statistics, *Apprenticeship Statistics 1984–85 to 1993–94* (NCVER), *Apprenticeship Statistics 1983–84 to 1992–93* (NCVER), *Apprenticeship Statistics* various years (DETYA).

The age distribution of students/trainees in TAFE AQF III (and equivalent) courses will also provide information on trends in adult trade training. Figure 14 presents the percentage of the metal trade groups course enrolments by people over the age of 25. The proportion of

[65] In this case, student would receive informal RPL but the college would obtain a full student subsidy.

(modular) course enrolments for people over the age of 25 rose slightly from 10% in 1994 to 14% in 1998. All of this modest growth has been for apprentices between the ages of 25 and 39.

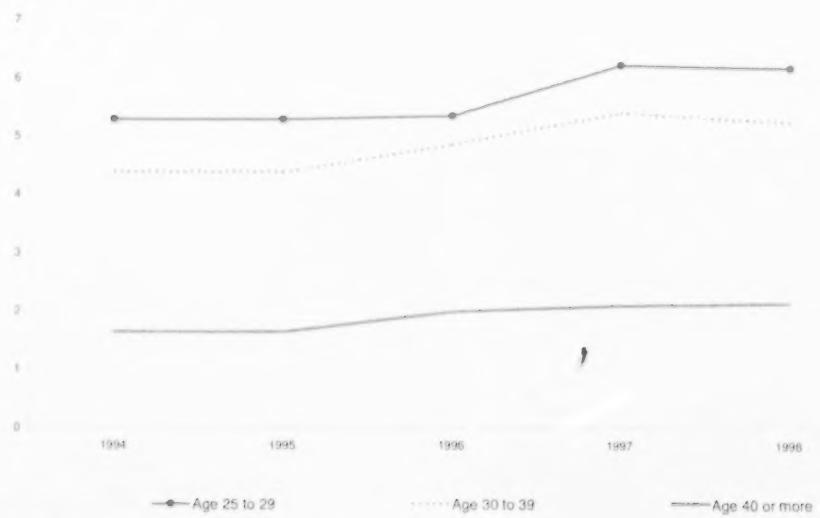
Figure 14: Percentage of metal trade certificate or AQF III TAFE module enrolments by age, Australia, 1994–98



Source:
NCVER unpublished statistics

The age distribution in the building trades as shown in figure 15 was similar to the metal trades—there was a modest rise in the proportion of older apprentices from 11% in 1994 to 13% in 1998. This growth has all been in the 25–40-year-age groups.

Figure 15: Percentage of building trade certificate or AQF III TAFE module enrolments by age, Australia, 1994–98



Source:
NCVER unpublished statistics

The electrical trades (figure 16) exhibited both higher levels of older apprentices and a greater absolute rate of increase than the metal and building trade groups. The proportion of students over 25 years rose from 20% in 1994 to 26% in 1998.

Similar to new apprentice data, the vehicle trades as shown in figure 17, had the lowest level of adult trade enrolments. Six per cent were over the age of 25 in 1994 and this percentage rose marginally to 8% in 1998. The relative ranking of adult apprentices by trade group is similar to the data on apprentice commencements as shown in figure 13.

Formally upgraded adults

Recognition under TRRA and State/Territory legislation

As discussed in chapter 3, two forms of legislation, the TRRA and State/Territory acts, exist to grant formal Australian trade status to otherwise skilled but unrecognised practising tradespeople. This is essentially a credentialising service for workers who have acquired the full set of trade skills but believe that their work prospects would be enhanced by formal recognition. Neither of these processes confer additional skills upon the applicant.

Table 37 (page 80) presents the average number of TRRA accreditations between 1980 and 1998–99. Over the period, the number of accreditations averaged 2700 which amounts to 9.5% of all people qualifying as a tradesperson. There is no apparent trend in the numbers qualifying this way. However, as most of the applicants are overseas-qualified tradespeople seeking local recognition it is not a significant source of formal upgrading. Most recent data suggests that about one in five applications are from locally trained tradespeople.

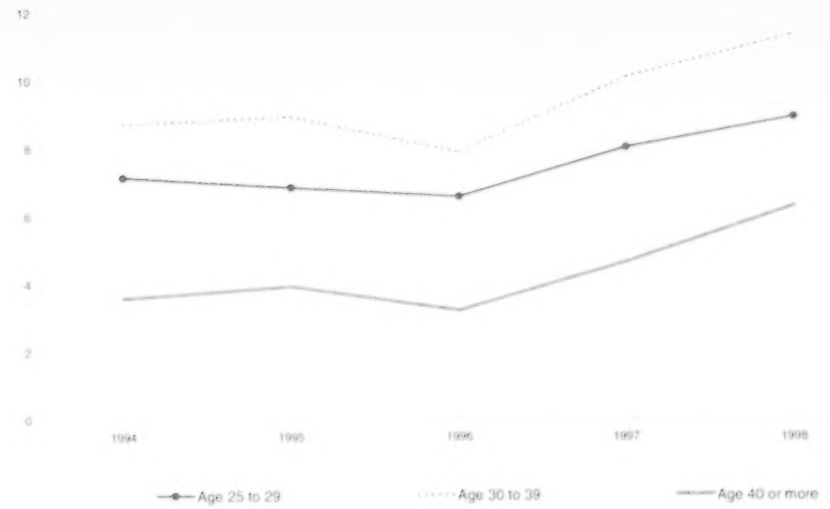
The second column in table 37 presents the numbers of tradespeople receiving formal recognition under State and Territory legislation. An average of 1000 people gained a formal trade certificate during the period 1983–84 to 1993–94 (excluding 1984–85) each year and like the TRRA, there is no apparent trend in the numbers receiving this form of qualification. It is not known what proportion of these applicants were overseas-trained or not. Nevertheless, over the period 1980 to 1998–99, this source of accreditation amounted to 3.5% of total qualifications.

However, a much higher rate of non-apprenticeship recognition is implied by the ABS career paths of tradespeople surveys. In 1989, 19.5% of qualified tradespeople working in their trade had this type of recognition. By 1993 it had fallen slightly to 18.9.[56] About half of these had undertaken their training in Australia and the remainder had acquired their skills overseas.[57] This difference between the flow and stock data may arise if TRRA/legislation-recognised tradespeople are less likely to leave the trades and therefore are more likely to have responded to the ABS survey.

While an important minor supplement to the pool of accredited trade skills, the rate of recognition seems low compared with the level of informally upgraded trade workers. Either industry (workers and employers) places a low value on the accreditation, or the route to successfully obtaining a formal recognition is too hard or unknown, or there are too few Australian-trained people who would qualify under the current rules for success. With respect to the latter, skills may not be complete or well-rounded enough.

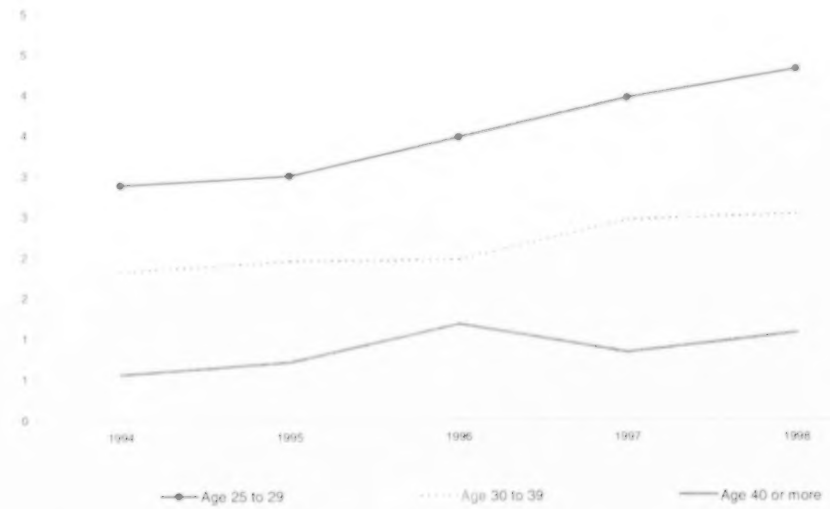
[56] ABS cat.6243.0 Career paths of persons with trade qualifications, Australia.
[57] Skills may have been acquired through an uncompleted apprenticeship, in-house courses, ad hoc TAFE modules and/or on the job.

Figure16: Percentage of electrical trade certificate or AQF III TAFE module enrolments by age, Australia, 1994–98



Source:
NCVER unpublished statistics

Figure 17: Percentage of vehicle trade certificate or AQF III TAFE module enrolments by age, Australia, 1994–98



Source:
NCVER unpublished statistics

Table 37: Numbers of people who have not completed an Australian apprenticeship receiving formal trade recognition, 1980 to 1998–99

	TRRA (includes only 6 trade areas)	Recognition of trade skills under State and Territory legislation	Completed apprenticeship
1980	3880		
1981–82	5052		32015
1982–83	5334		
1983–84	2157	447	
1984–85	1694		36534
1985–86	1756	1437	38156
1986–87	514	1340	26532
1987–88	2257	1393	29916
1988–89	2715	846	30436
1989–90	4082	1207	32148
1990–91	4483	872	32202
1991–92	4128	375	36066
1992–93	3117	988	39582
1993–94	3087	1604	34325
1994–95	2196		22524
1995–96	2213		21561
1996–97	1412		22410
1997–98	1116		
1998–99	916		
Average	2742	1004	25150
Percentage of total qualifying over whole period	9.5	3.5	87.0

Note:
*1980 to 1985–86 ASCO 1st edition; 1986–87 ASCO 2nd edition.

Source:
NCVER

ABS census data

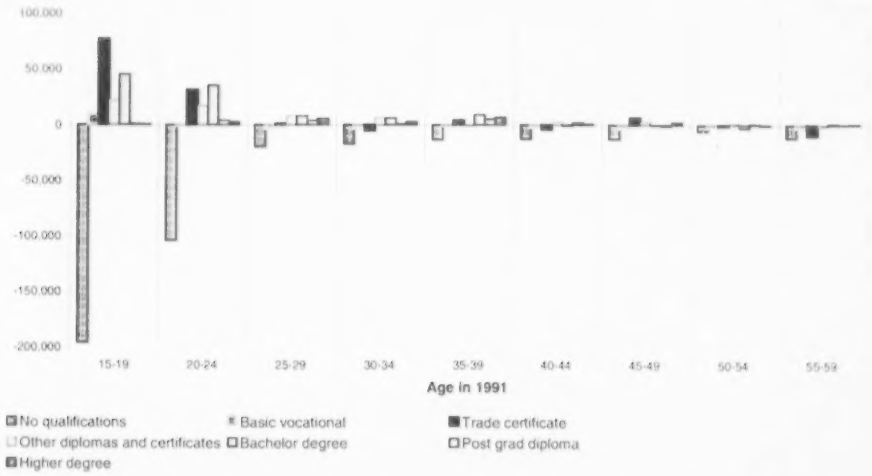
While most people gain their formal post-school qualifications in the years immediately following school, there have always been a minority of adults who qualify later in life. The training reforms from the late 1980s were intended to make adult training easier in the trades—a system previously targeted towards young labour force entrants.

Data from the 1976 to 1996 census of population and housing have been used as one measure of the extent to which trade qualifications have been acquired by the adult population. Figures 12 to 16 present the changes in the numbers of Australian-born men by highest qualification in each five-year birth cohort. A rise in the number of men holding a trade qualification (trade certificate or skilled vocational certificate) between census years is an indicator of the number of men who have gained a trade qualification[46] *less* the number who have died, emigrated, or upgraded their qualification by completing a diploma or degree. It is a basic, but crude, indicator of the net gain by each birth cohort of qualified tradesmen.

[46] It also includes the immigration of Australian-born men who hold a trade qualification.

Figure 18 presents these net gains for the period 1991 to 1996, and shows, as one would expect, that the major net movements from 'no qualifications' to trade qualifications, diploma and degrees occurred before the age of 25.

Figure 18: Change between 1991 and 1996 in the number of Australian-born men in highest qualification groups by birth cohort (ages 15 to 59).



Figures 19 to 22 present a close-up view of men aged 25 to 59 in order to examine the adult years more carefully. To make sense there should be a fall in the numbers of men with no qualifications between each census year and a progressively positive number entering the higher qualification categories. People who did not state their qualifications or did not provide an adequate description were classified as not qualified. Because of differences across censuses in (a) the proportions who did not adequately respond, (b) the coding of qualifications in each census and (c) the extent to which the total population has been fully enumerated[20], it is advisable to only draw general inferences from the data presented below. A literal translation of numbers could be misleading.

According to figure 19 there was a net decline in the percentage[21] of men with no qualifications or with trade qualification for every birth cohort between 1976 and 1981. Apart from death or emigration, these men have left these groups in favour of diplomas and other certificates, bachelor degrees, post-graduate diplomas and higher degrees. This suggests that there was minimal degree of formal upgrading into the skilled trades between 1976 and 1981.

The pattern for 1981 to 1986 as shown in figure 20 indicates less change between qualifications categories than for 1976 to 1981. There was no particular pattern of leaving or entering the trades qualified group and a more uneven patterns across birth cohorts.

[20] For example, the 1991 census recorded more Australian-born people in some birth cohorts than the 1986 census. This will either be due to a higher level of population enumeration in 1991 or net immigration of Australian born-people.

[21] Change in the numbers of men as a percentage of that birth and qualification group in 1981.

Figure 19: Percentage change between 1976 and 1981 in the number of Australian-born men in highest qualification groups by birth cohort (ages 25 to 59)

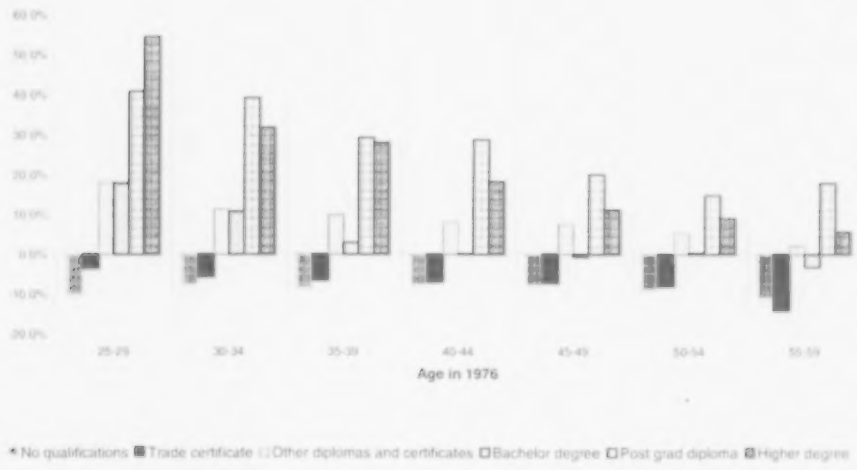


Figure 20: Percentage change between 1981 and 1986 in the number of Australian-born men in qualification groups by birth cohort (ages 25 to 59)

Between 1986 and 1991, there was greater net change between the qualification groups (figure 21). As expected, there were net declines in the number of men with no qualifications (except for men aged between 40 and 44) as well as a net movement out of diplomas and other certificates. These changes have largely been to the benefit of bachelor and higher degrees. Nevertheless there were also significant net percentage increases in the number of men with trade qualifications. In all groups, except the cohort aged 55 to 59 years (in 1986), the number

of trade-qualified men rose. This may reflect some of the changes due to award restructuring during the late 1980s.

Figure 21: Percentage change between 1986 and 1991 in the number of Australian-born men in qualification groups by birth cohort (ages 25 to 59)

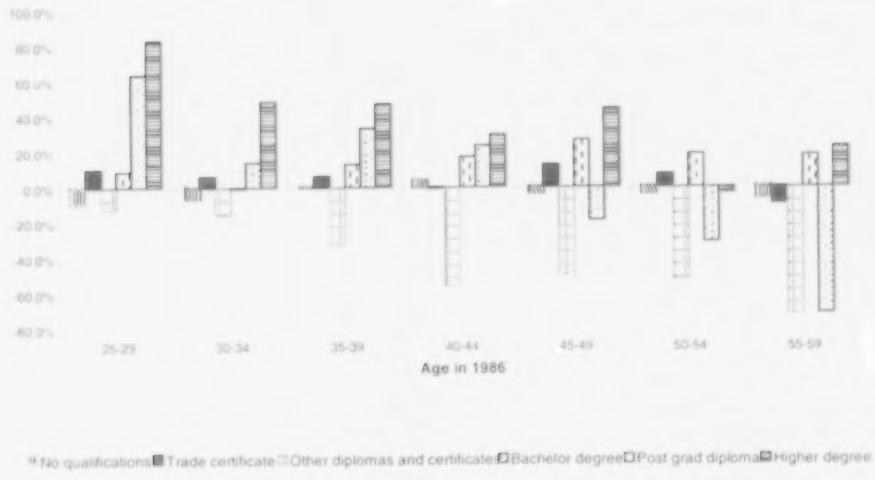
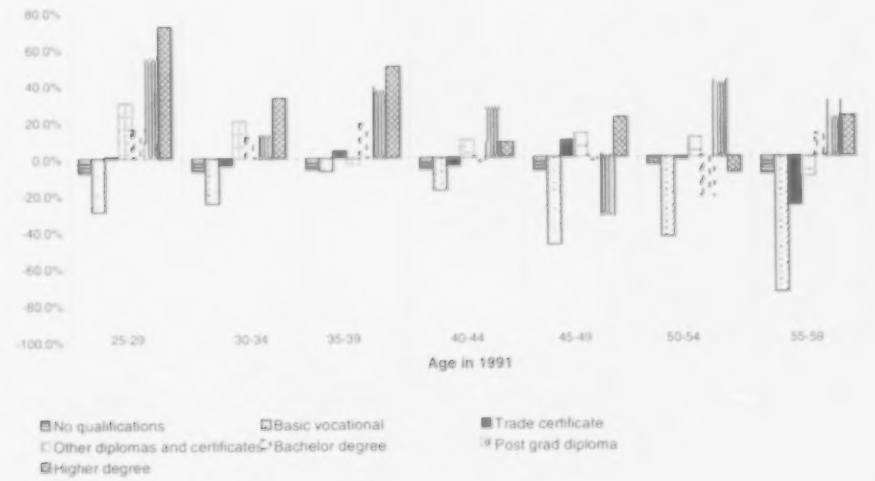


Figure 22 presents the situation between 1991 and 1996. It shows a consistent upgrading in qualifications overall, but a less even pattern for the trades group. Until the age of 35 (in 1991), there was a decline in the number of men citing their trade qualification as their highest qualification. From 35 to 39 and from 44 to 49 there was a net rise in the number of trades-qualified men. Beyond this age, there was a net decline.

Figure 22: Percentage change between 1991 and 1996 in the number of Australian-born men in qualification groups by birth cohort (ages 25 to 59)



In sum, a positive net inflow of men into the trades qualification groups appears to have more likely occurred during the 1990s than the 1980s. However, as a percentage of men in the qualification group, there has been less movement into the trades area compared with diplomas and degrees.

Conclusion

Six main sources of data have been examined to see whether the skilled training rate for adults has increased after the late 1980s. Most of the sources are consistent with the view that since the late 1980s, adults have become more likely to gain a skilled vocational qualification and that provision for recognition for existing skills has assisted this change. However, the number of adults involved appears very small, especially compared with the number of unqualified tradespeople currently working in the metal, building, vehicle and electrical trades. There is no rise in the tendency for tradespeople to gain formal accreditation for skills gained informally or overseas.

The AWIRS data reveal that the occurrence of enterprise training for trade and related workers increased between 1990 and 1995, but compared with other occupations, trade and related workers have lower training rates. Additionally, provisions for career and experience promotions were more limited for trade and related workers than for other occupations. It should be borne in mind that lower training rates may not be inefficient in occupations where there are fewer required ongoing and enterprise skills, or, these skills are more effectively gained through informal training (work experience).

The ABS surveys of education and training, provided strong evidence that the incidence of formal training and vocational study among trade and related workers had increased from 1989 to 1997. Both groups of workers with skilled vocational qualifications and workers with no qualifications had rising training rates. This positive trend was apparent even after controlling for factors such as age, industry and educational level.

The frequency of adult vocational students who have received RPL appears to have increased during the 1990s. However, the overall magnitudes of workers pursuing this career path is very small by comparison with the overall numbers of unqualified workers doing trade work. Surprisingly, people studying for a trade qualification are less likely to receive RPL for previous work experience compared with degree and diploma students. Funding formulae for TAFE colleges may lead them to understate the 'true' level of RPL.

Existing fragmented State data collections indicate that numbers of adults getting reduced indenture/contract periods due to their existing skills is, on balance, rising. However, State data compilations are not uniform and any information describing adults pathways to skilled qualifications is incidental to the data collection process.

There appears to be no positive trend in the portions of non-Australian skilled tradespeople seeking local recognition for their qualifications through either the Commonwealth TRRA or State and Territory legislation. A high proportion of these applicants are thought to be overseas-qualified tradespeople.

Finally, ABS population census data from 1971 to 1996 suggest that the percentage of men in given birth cohorts citing a trade qualification as the highest qualification was higher from 1986–96 compared with 1976–86. This change will have arisen because there has been a growth in the percentage of men who have moved from the 'no qualification' or 'basic qualification' groups to the 'skilled vocational qualification' group after 1986.

5 Job satisfaction for trade qualified workers

Introduction

Expected and actual job satisfaction is an important determinant of the desire to undertake education and training and will also affect subsequent attrition from an occupation. This section models the relationship between pecuniary and non-pecuniary job satisfaction for trade-qualified workers compared with other workers. Even though it is not possible to objectively compare satisfaction levels across individuals, different levels of subjective satisfaction across groups of the workforce have been found to explain systematic differences in labour market behaviour including labour turnover (Freeman 1978; McEvoy & Cascio 1985; Akerlof et al. 1988), absenteeism (Clegg 1983) and counter- and non-productive work (Mangione & Quinn 1975).

Relative prevalence of job satisfaction

Tables 38 to 43 present the mean index of non-pecuniary job satisfaction according to selected socio-economic variables. A description of the data can be found in appendix C. With the exception of trade qualifications, workers with post-school qualifications report significantly higher levels (at the 0.05 level) of non-pecuniary job satisfaction than unqualified workers. While people who possessed a higher degree had higher mean non-pecuniary satisfaction than bachelor degree and 'other' qualification holders, this difference was not significant (0.05 level).

Table 38: Non-pecuniary job satisfaction by highest post-school qualification type, Australia, 1984–95

Post-school qualifications	Mean	Frequency
Higher degree	0.15	324
Bachelor degree	0.09	779
Diploma qualification	0.14	537
Trade qualification	-0.07	1177
'Other' qualification certificate	0.12	573
No qualification	-0.05	421
Missing	0.10	1955

Note:
N=5766

Source:
International Social Science Surveys (Australia), 1984, 1986, 1987, 1994 and 1995

A similar relationship does not also hold between average satisfaction and years of schooling shown in table 39. While workers with higher levels of secondary school education reported generally higher levels of satisfaction, few of these differences were significant at the 0.05 level.

People who experienced no recent unemployment were significantly more likely to be employed in a job with higher-rated non-pecuniary job satisfaction than people who had experienced some unemployment (table 40). Years of full-time work experience had no association with job satisfaction. Even though the mean level of satisfaction tended to rise with years of experience, the difference between the categories was not significant.

Table 39: Non-pecuniary job satisfaction according to school education, Australia, 1984 to 1995

School education	Mean	Frequency
Did not complete Year 9	0.02	479
Completed Year 9	0.12	631
Completed Year 10	0.00	1342
Completed Year 11	0.00	814
Completed Year 12	0.03	2416
Missing	-0.18	84

Note:
N=5766

Source:
International Social Science Surveys (Australia), 1984, 1986, 1987, 1994 and 1995

Table 40: Non-pecuniary job satisfaction according to measures of work skills, Australia, 1984 to 1995

Work skills	Mean	Frequency
Weeks spent unemployed in past year		
0	0.04	5288
1–20	-0.15	249
21–40	-0.19	97
40+	-0.06	117
Missing	-0.12	15
Years spent in full-time employment		
Up to 10	0.01	1903
11–20	0.04	1588
21–30	0.01	1039
31–40	0.05	609
40+	0.05	395
Missing	-0.06	232

Note:
N=5766

Source:
International Social Science Surveys (Australia), 1984, 1986, 1987, 1994 and 1995

Finally, according to table 41, higher-skilled occupations appear to impart more non-pecuniary satisfaction than lesser-skilled jobs. Professional workers followed by managers and administrators reported the highest levels of satisfaction and plant and machine operators and drivers reported the lowest. Tradespeople, clerks and sales and personal service workers reported average levels of satisfaction.

Table 41: Non-pecuniary job satisfaction by occupation, Australia, 1984 to 1995

Occupation (ASCO1)	Mean	Frequency
Managers and administrators	0.16	539
Professionals	0.25	776
Para-professionals	0.11	346
Tradespersons	0.02	511
Clerks	0.06	666
Salespersons and personal service workers	0.02	470
Plant and machine operators and drivers	-0.26	240
Labourers and related workers	-0.16	335
Missing	-0.07	1883

Note:
N=5766

Source:
International Social Science Surveys (Australia), 1984, 1986, 1987 and 1995

Model results

A model of a worker's choice between non-pecuniary and pecuniary job returns is presented in appendix C. It argues that the chosen final wage or salary and chosen level of non-pecuniary returns should be modelled as two separate equations which are both functions of macroeconomic and worker characteristics defining an individual's job opportunity set, and demographics and personal characteristics determining their personal trade-off between non-pecuniary and pecuniary returns.

Although the tables above indicate characteristics associated with non-pecuniary job satisfaction, they do not necessarily indicate the main determinants of either the job opportunity set or the individual's choice between comparative job advantages. This requires an estimation of our model as per equations (6) and (7) in appendix C.

The first step in estimating the model is to test for the possibility that the sample of working people was a biased sample of the whole working age population. A full maximum likelihood Heckman selection model yielded no evidence of selection bias and the model was estimated using OLS, with robust standard errors.

Given the individual's labour supply decision (in relation to the decision to provide a given number of hours to the labour market) and their ability to attain a job, the model should indicate which factors affect their job opportunity frontier and which factors alter their choice between pecuniary and non-pecuniary returns.

The dependent variables in the chosen final regressions were non-pecuniary job satisfaction (hours squared plus 18 were included with a weight of –0.096)[71] and pre-tax wage and salary income.

A variable which has the same signed effect on both pecuniary and non-pecuniary returns represent situations where the variable has shifted the individual's job opportunity frontier function outwards or inwards, *ceteris paribus*. Variables which have a differentially signed effect on pecuniary and non-pecuniary returns may reflect different preferences (by the different individuals) over job rewards or may indicate situations where the individual's

[71] This assumes that a marginal disutility from working sets in after the 18th hour of work per week. From 0 to 18 hours, total utility rises marginally. While 18 is an arbitrary setting, it does not appear reasonable *a priori* to assume that no positive utility is gained from working a limited number of hours.

opportunity frontier has pivoted in favour of one type of return over the other. As such, the results from the two equations need to be jointly interpreted.

Table 42 presents results from the two equations with all variables listed above and table 43 presents the preferred equations, which eliminates self-enumerated ability and social class. Although one of the social class variables is significant in both equations in table 42, neither are significant if inserted in each equation alone.

Table 43 indicates that most the variables have the effect of altering the final trade-off between non-pecuniary and pecuniary returns although a few factors appear to enhance job choice and thus permit more of both types of reward. Similar results are found if hours are excluded from the measure of non-pecuniary returns which indicates that this effect is not due to the inclusion of hours in the non-pecuniary variable, where a clear trade-off is expected.

All post-school qualifications, except trade qualifications, are associated with higher pecuniary and non-pecuniary returns (although only 'other' certificate was significant at the 0.10 level) compared with unqualified workers, *ceteris paribus*. The largest margins for non-pecuniary satisfaction are associated with diplomas and 'other' certificates where the margins for earnings are smallest. People with trade qualifications appear to derive lower non-pecuniary satisfaction but similar earnings compared with people without qualifications. This result suggests that holding a trade qualification reduces workers' jobs opportunity set *ceteris paribus*. It may account for why some qualified tradespeople are content to take up non-trade jobs at lower pay.

The pattern for years of schooling differs from qualifications. Further years of education appear to lead people to take out their job returns in the form of higher earnings rather than more non-pecuniary returns.

Indicators of better work skills should shift the job opportunity frontier out and this effect appears to be present in the data (to an extent). More weeks of recent unemployment shifts the frontier inwards as the co-efficients in both equations have the same sign. Years spent in part-time work also shift the frontier inwards, possibly because it is an indicator of casual work with limited skill acquisition opportunities. Years of full-time work appear to affect earnings but not non-pecuniary satisfaction.

Greater access to jobs due to a more buoyant labour market and growing up in the city where job opportunities are greater should shift the job opportunity frontier outwards and this pattern is found to be partially true in the data. A higher macroeconomic unemployment rate was associated with a significantly lower level of achieved non-pecuniary satisfaction. The co-efficient on wages and salaries was correctly signed but not significant. Living in a larger community when young had the effect of raising earnings and non-pecuniary returns but the latter effect was small and not significant.

More religious people appear to take jobs that offer greater non-pecuniary satisfaction and less earnings (as expected). Being a female with children also tilts job choice towards non-pecuniary satisfaction compared with childless men. Preferences for non-pecuniary returns appear stronger for women than men, as childless females are also more likely than childless males to trade off non-pecuniary for pecuniary satisfaction. It is not clear why men with children get jobs with more of both attributes than childless men.[72] Workers from non-English-speaking backgrounds appear prepared to accept jobs with less non-pecuniary satisfaction for given earnings compared with Australian and English-speaking-background-born workers.

Finally, age affects earnings but not non-pecuniary satisfaction. Older people chose to take higher earnings rather than a more satisfying job as their job opportunity set expands, *ceteris paribus*.

[72] Although not shown in table 3, marital status was not significant in either the non-pecuniary or earnings equations.

Table 42: Determinants of non-pecuniary job satisfaction and wages and salaries[a]

	Non-pecuniary satisfaction			Wages and salaries $		
	Co-eff.		*t*	Co-eff.		*t*
Post-school qualification						
× 1Higher degree	0.07		*0.887*	12585	***	*6.299*
× 1Bachelor degree	-0.01		*-0.103*	9866	***	*6.766*
× 1Diploma qualification	0.03		*0.352*	5591	***	*3.506*
× 1Trade qualification	-0.12	*	*-1.882*	-297		*-0.242*
× 1Other qualification/certificate	0.18	**	*2.028*	4202	***	*2.881*
School education						
× 1Completed Year 9	-0.04		*-0.424*	-568		*-0.302*
× 1Completed Year 10	-0.11		*-1.236*	4155	**	*2.166*
× 1Completed Year 11	-0.06		*-0.585*	6109	**	*2.562*
× 1Completed Year 12	-0.06		*-0.613*	5878	***	*2.697*
Work skills						
Weeks spent unemployed in the past year	-0.01	***	*-3.252*	-457	***	*-6.832*
Years spent in part-time employment	-0.01		*-0.902*	-442	**	*-2.320*
Years spent in full-time employment	0.00		*-1.120*	200	**	*1.994*
× 1Above average at school[b]	0.22	*	*1.714*	767		*0.352*
× 1Average at school[b]	0.23	*	*1.699*	190		*0.083*
Access to jobs						
nnual unemployment rate	-0.10	***	*3.504*	337		*0.435*
row up in city (1=farm, 6=metro)	0.00		*-0.092*	662	***	*2.696*
Social class						
× 1Father finished secondary school	0.10	**	*2.411*	-772		*-0.633*
Social class when young (1=high, 5=low)	-0.01		*-0.580*	-772	**	*-1.978*
Other personal characteristic						
Religious (1=never, 4>=once week)	0.01		*0.513*	-734	*	*-1.741*
× 1Non-English-speaking background	-0.15	**	*-2.490*	-2576	*	*-1.833*
× 1Female with children under 18	0.15	**	*2.505*	-11819	***	*-8.608*
× 1Male with children under 18	-0.02		*-0.428*	2330	*	*1.924*
× 1Female with no children under 18	0.07		*1.494*	-7118	***	*-6.526*
Age	0.01		*0.903*	1884	***	*4.618*
Age squared	0.00		*-0.045*	-20	***	*-3.731*
Constant term	0.35		*0.905*	-20640	**	*-2.467*
Method	OLS robust errors			OLS robust errors		
N	1571			1632		
R^2	0.27			0.32		

Notes:
Base case=no post-school qualifications, did not complete Year 9, father did not finish secondary school, lower social class, below average at school, ESB, male with no children.

a Pre-tax income
b Self-enumerated rating
× 1 indicates dummy 1=yes, 0=no
*Statistically significant at the 0.10 level
**Statistically significant at the 0.05 level
***Statistically significant at the 0.01 level

Source:
International Social Science Surveys (Australia), 1984, 1986, 1987, 1994 and 1995

Table 43: Determinants of non-pecuniary job satisfaction and wages and salaries'

	Non-pecuniary satisfaction			Wages and salaries $		
	Co-eff.		*t*	Co-eff.		*t*
Post-school qualification						
× 1Higher degree	0.06		1.131	13833	***	9.130
× 1Bachelor degree	0.03		0.812	10417	***	8.784
× 1Diploma qualification	0.07		1.479	5263	***	4.723
× 1Trade qualification	-0.12	***	-3.556	-340		-0.454
× 1Other qualification/certificate	0.09	*	1.869	4086	***	3.210
School education						
× 1Completed Year 9	0.08		1.288	2567	**	2.021
× 1Completed Year 10	-0.01		-0.093	4595	***	3.798
× 1Completed Year 11	0.00		0.036	8161	***	4.996
× 1Completed Year 12	-0.01		-0.141	7462	***	5.389
Work skills						
Weeks spent unemployed in the past year	-0.01	***	-3.832	-243	**	-2.496
Years spent in part-time employment	-0.01	**	-2.139	-408	***	-3.529
Years spent in full-time employment	0.00		-1.361	270	***	3.809
Access to jobs						
Annual unemployment rate	-0.08	***	-3.444	-249		-0.436
Grow up in city (1=farm, 6=metro)	0.01		1.132	525	***	2.980
Other personal characteristic						
Religious (1=never, 4>=once week)	0.02	**	1.811	-791	**	-2.556
× 1Non-English-speaking background	-0.15	***	-3.511	-1717		-1.572
× 1Female with children under 18	0.20	***	4.498	-9505	***	-7.783
× 1Male with children under 18	0.06	*	1.735	2318	**	2.451
× 1Female with no children under 18	0.09	***	2.581	-7085	***	-8.517
Age	-0.01		-0.608	1157	***	3.864
Age squared	0.00		1.627	-13	***	-3.401
Constant term	0.60	**	2.307	-1659		-0.237
Method	OLS robust errors			OLS robust errors		
N	3602			3715		
R	0.18			0.23		

Notes:
Base case=no post-school qualifications, did not complete Year 9, father did not finish secondary school, lower social class, below average at school, ESB, male with no children.
a Pre-tax income
× 1 indicates dummy 1=yes, 0=no
*Statistically significant at the 0.10 level
**Statistically significant at the 0.05 level
***Statistically significant at the 0.01 level

Source:
International Social Science Surveys (Australia), 1984, 1986, 1987, 1994 and 1995

Conclusion

This analysis has found that trade qualifications are outperformed by other types of post-school qualifications, as measured by their respective impacts on *both* non-pecuniary job satisfaction and pre-tax wages and salary income. This provides a basis for questioning the quantity and quality of labour that is attracted into undertaking trade qualifications and a partial explanation of the observed attrition from the trades, especially into lower paying jobs.

6 Attrition from the trades

Introduction

Attrition or wastage from the skilled manual trades has been acknowledged for some time as a factor contributing towards the shortage of skilled tradespeople in certain markets (see Thomas 1988a; 1988b). Separation from the 'home' occupation is generally higher for tradespeople than for professional and para-professional workers and is inversely correlated with median income. Lack of careers paths[73] and limited opportunities for promotion through training pathways was highlighted during the late 1980s as a source of job dissatisfaction and subsequently high rates of attrition. In addition to its other goals, award restructuring was intended to specifically address this shortcoming.

Chapter 2 has already indicated that even though wastage into lower-skilled occupations declined over the 25 years to 1996 there still remains high levels of qualified tradespeople working outside their trade. While a minority, albeit a growing one, of qualified tradesmen has been moving into 'higher' managerial or technical occupations where their trade skills are likely to be used to some extent, many are taking semi-skilled or unskilled manual and service sector work. In 1996, 17.9% of metal, vehicle and electrically qualified tradesmen and 14.4% of qualified building tradesmen were working in these less skilled jobs. A further 8 to 13% were working in clerical and sales jobs where the relevance of trade skills is unclear. This percentage of trade-qualified men working in lesser skilled jobs compares unfavourably with 7.4% for tertiary-qualified men. High wastage or attrition is often found in occupations where there are comparatively few prospects for advancement and the main avenue for job variety and challenge is acquired through changing jobs or occupations.

Bearing in mind the results from the previous chapter on non-pecuniary job satisfaction, this section of the report considers additional reasons why tradespeople leave their trade, and makes some preliminary investigations over the role which the provision of further training opportunities may play in enhancing retention and career paths in the trades. The reasons for attrition is likely to be multi-faceted and it is expected that all of the above reasons, including random and personal factors, will account for separations from some occupations. The intention of the empirical work below is to obtain a ranking of the relative factors as well as some indication of the magnitudes of importance.

Main reason for leaving trade

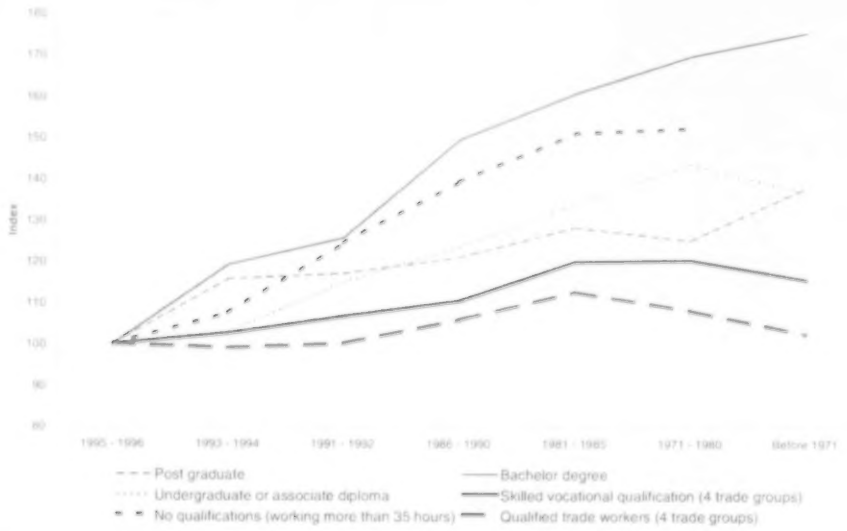
There is reasonable evidence that career paths for working tradesmen and trade-qualified men have flatter experience–earnings profiles than other skilled categories of labour. Figure 23 shows these profile for several different qualification groups. In each case the base year is men who completed their qualification within the last 18 months. These earnings profiles are approximate as they represent successive cross sections of men with the same qualification type at one point in time (1996) instead of tracing the same group of people over their life time. As such they may under or overstate earnings trajectories to the extent that each cohort includes people with different labour market characteristics. However, given that there are no

[73] Prior to award restructuring, the Metal Trades Award had 300 classifications, 1800 rates of pay which, with the exception of the electrician, did not contain any career structure (see Macken 1989, p.72).

strong *a priori* reasons for believing that the data have been corrupted by these factors, the trends are likely to be indicative of longitudinal career paths of men.

Figure 23 reveals that qualified tradesmen who remain within the trade labour markets have the flattest earnings profiles. While their profiles are flatter than men with no qualifications, this is due to different starting incomes. In addition, all men who have gained a skilled vocational certificate in the four main trade areas have steeper earnings profiles than qualified men who remain working in the trades. It is not surprising therefore, to find that many men are attracted to jobs outside their trade.

Figure 23: Index of average individual incomes for men aged 21 to 65 by qualification and year qualification obtained, Australia, 1996



Note:
1995–96 = 100 except for no qualifications where 100 is taken at 3.5 years since leaving school. For men with no qualifications, year of qualification has been determined by the age they left school plus 3.5 years. Major trade groups include metal & engineering, building & construction, electrical and vehicle.

Source:
ABS 1996 Census of Population and Housing, 1% sample file

Panel data from the Youth-in-Transition surveys[74] on the earnings of qualified tradesmen who move into different jobs indicate that, with the exception of tradespeople who take up managerial and administrative positions (many of these jobs will be in their own business), and those who work in unskilled labouring positions, occupation has an ambiguous effect on earnings.

While caution has to be exercised in interpreting the data due to the small counts in some of the cells, two main trends are apparent. First, qualified tradesmen who have moved into managerial or administrative positions earn a significant premium over those who remain in trade classified jobs. This may reflect higher earnings of those operating their own businesses. Second, qualified tradesmen who work in the labouring occupations earn less that those who remain in a trade.

[74] A panel data set traces the same individuals over time. This means that any variation over time (as the cohort ages) will not be due to differences in personal characteristics of the sample such as their innate ability, family background, innate motivation and confidence.

For most other occupational categories no clear trend is apparent. The data based on CCLO categories shows consistently lower earnings, if only slightly, for those who had left the trades. The result is mixed when the ASCO classifications are used, and we hold greater store in the distinction between trade and non-trade occupations using this system. If earnings are correlated with productivity, then movements into managerial and administrative positions do not represent wastage as tradespersons appear to move into positions in which they are more productive. The same cannot be said of the overall movement out of trade occupations.

Table 44: Mean weekly incomes of male workers who gained trade qualifications by occupation, Youth-in-Transition surveys, 1961 and 1970 cohorts

a. CCLO major categories, 1961 cohort, ages 19 to 30

CCLO major category	Age 19 (1980)	Age 21 (1982)	Age 23 (1984)	Age 26 (1987)	Age 30 (1991)
Professional & technical	$121	$207	$289	$325	$475
Admin., exec. & managerial		$200	$400	$388	$497
Clerical & sales	$114	$220	$267	$387	$384
Farming & related workers	$104	$205	$292	$373	$339
Mining & related workers			$160	$290	$500
Transport/comm. workers	$150	$250	$267	$434	$450
Trades, production process, labourers	$134	$228	$292	$368	$466
Non-trade process and labourers	$240	$236	$284	$324	$393
Service, sport, rec. workers	$113	$212	$241	$307	$431
Members of armed forces	$155	$222	$262	$300	$364
All non-trade occupations	$131	$217	$272	$355	$435

b. ASCO major categories, 1961 cohort, ages 28 to 33

ASCO major category	Age 28 (1989)	Age 29 (1990)	Age 30 (1991)	Age 31 (1992)	Age 32 (1993)	Age 33 (1994)
Managers & administrators	$589	$637	$530	$628	$547	$725
Professionals	$632	$629	$498	$513	$368	$682
Para-professionals	$469	$421	$439	$514	$464	$585
Tradespersons	$472	$428	$455	$463	$472	$549
Clerks	$571	$365	$363	$355	$389	$479
Sales and personal service	$521	$443	$372	$423	$400	$442
Plant & machine ops/drivers	$495	$472	$419	$518	$479	$475
Labourers and related	$449	$321	$476	$443	$363	$441
All non-trade occupations	$509	$483	$448	$508	$447	$582

c. ASCO major categories: 1970 cohort, ages 19 to 24.

ASCO major category	Age 19 (1989)	Age 20 (1990)	Age 21 (1991)	Age 22 (1992)	Age 23 (1993)	Age 24 (1994)
Managers & administrators	$262		$195	$100	$225	$839
Professionals						$505
Para-professionals	$268	$365	$431	$404	$423	$500
Tradespersons	$268	$319	$423	$421	$416	$524
Clerks	$250			$300	$85	$410
Sales and personal service	$290		$170	$285	$389	$333
Plant & machine ops/drivers	$280	$500	$290	$397	$470	$682
Labourers and related	$316	$324	$309	$393	$327	$434
All non-trade occupations	$284	$363	$330	$363	$385	$520

Note:
Not applicable/not stated excluded.

Source:
Youth-in-Transition panel data set, Australian Council for Educational Research

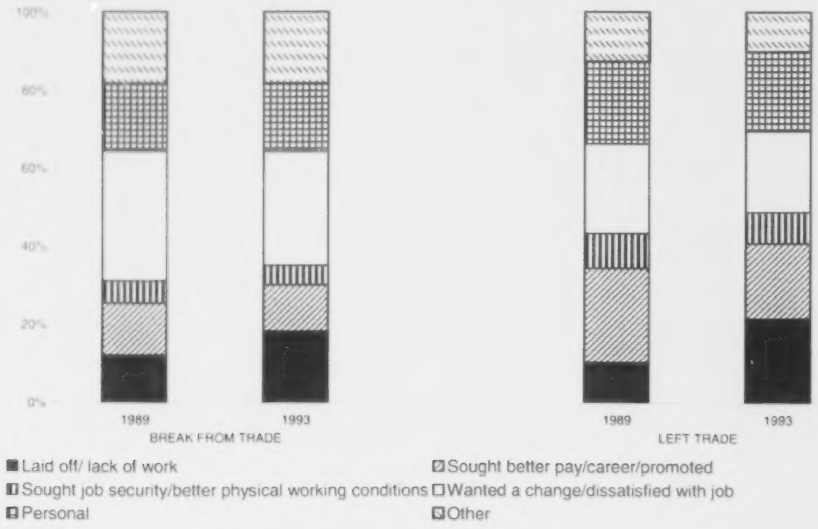
While census and the Youth-in-Transition data provide an overview of the relative position of qualified tradespeople vis-à-vis their trade occupation, they do not indicate factors which have motivated skilled tradespeople to leave their trade, nor factors which would assist in a return. This information is provided in a separate ABS survey titled the 'Career paths of persons with trade qualifications' which was conducted during 1989 and 1993.[7]

Both career paths surveys found that during the years leading up to 1989 and 1993, most qualified tradespeople left their trade voluntarily. While a higher percentage during 1993 compared with 1989 were laid off or lost their jobs (presumably due in part to the general decline in economic conditions), the level was below 20% for both tradespeople who had had a temporary break and those who were still out of the trade at the time of the survey. These leavers commonly cite a desire for change and general dissatisfaction with their job as their main reason (figure 24). However, the majority of people outside their trade at the time of the survey indicated that they would not consider returning. The longer a qualified tradesperson has been out of his or her trade, the less likely they are to indicate that they would consider returning. Of those who did return or would consider returning, the relative ease of obtaining a job was the most frequently mentioned facilitator in this return (figure 25). A sizeable proportion also mentioned better career prospects and opportunities for promotion.

A Melbourne Institute telephone survey conducted during 1999–2000 also provided information on why people tend to leave their trade. There were 13 800 people surveyed and people who either held skilled trade qualifications or were working as a tradesperson were asked a series of questions about the reasons for attrition of tradespeople and the role of training sources. A total of 1143 people fulfilled the selection criteria and agreed to answer the survey questions. Eighty-five per cent of respondents were male and as shown in table 45, the age distribution for the trade sample was slightly younger than the distribution for the total sample of 13 800 people. Seventy per cent of the trade sample were employed as a tradesperson and 57% held a trade qualification.

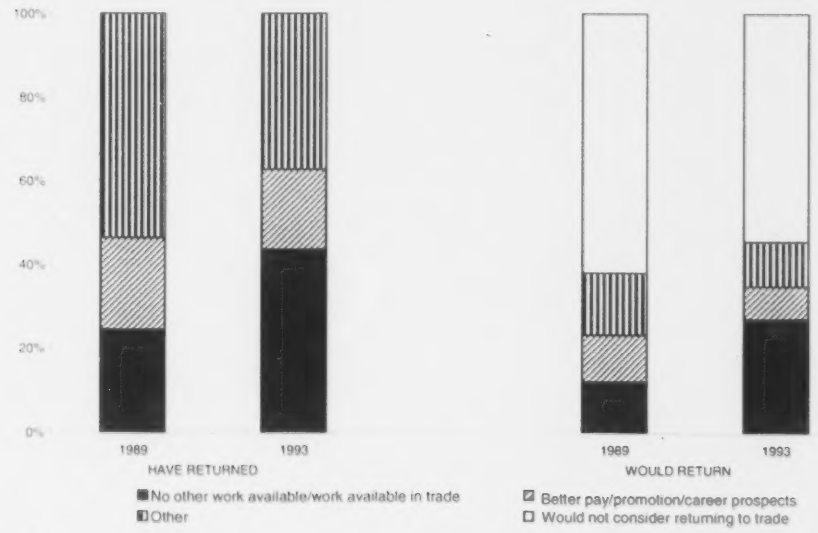
[7] While this survey reveals that, between 1989 and 1993, there was a net decline in the percentage of qualified tradespeople who were working as tradespeople to the benefit of other occupations and unemployment, this is likely to be due to the macroeconomic state of the economy and should not be regarded as indicative of a trend.

Figure 24: Reasons qualified tradespeople had had a break from the trade or had left the trade in 1989 and 1993, Australia



Source:
ABS cat. 6243.0 *Career paths of persons with trade qualifications*, Australia, 1989, 1993

Figure 25: Reasons qualified tradespeople returned to the trade or would consider returning to the trade as at 1989 and 1993, Australia



Source:
ABS cat. 6243.0 *Career paths of persons with trade qualifications*, Australia, 1989, 1993

Table 45: Percentage distribution of respondent age group

	Trade sample	Total sample
18–24 years	13.9	9.2
25–34 years	28.1	20.7
35–44 years	26.2	29.5
45–49 years	7.4	9.7
50–54 years	7.3	12.2
55–64 years	10.8	12.4
65+ years	6.4	6.3
Total	**100.0**	**100.0**

Source:
Melbourne Institute Omnibus Survey, October 1999 to August 2000, weighted by age, sex and location

A summary of responses about attrition of tradespeople from their trade is presented in table 46. The 'weighted mean' weights each respondent by how strongly they agree with the statement. A mean of 50 indicates that on average, respondents are equally balanced in favour and not in favour of the proposition. The two most common reasons were that tradesmen left to start their own business or to get a better job elsewhere. The least common responses were that the job was too difficult or there was not enough work around. On balance, respondents tended to agree that tradesmen were leaving their jobs because the pay was too low or there were little prospects for promotion.

Table 46: Tradesmen often leave their trade because ...

	...pay too low	...better job elsewhere	...work too difficult or dirty	...start own business	...little potential for promotion	...not enough work
Strongly agree	21.6	23.6	7.9	21.7	16.8	11.1
Agree	40.3	50.5	28.9	47.5	42.2	38.3
Neither agree nor disagree	5.8	5.0	6.8	8.3	7.7	7.8
Disagree	18.2	10.5	37.0	11.9	19.7	26.7
Strongly disagree	4.3	2.2	10.2	1.7	3.0	7.2
Weighted Mean[1]	**58.7**	**66.2**	**41.6**	**64.5**	**56.9**	**50.1**

Note:
[1] weighted average of 'strongly agree' by 100, 'agree' by 75, 'neither...' by 50, 'disagree' by 25, 'strongly disagree' by 0.

Source:
Melbourne Institute Omnibus Survey, October 1999 to August 2000, weighted by age, sex and location

In sum, the evidence on existing career paths and cited reason for why tradespeople leave their trade is most consistent with the view that qualified tradespeople are mainly leaving to get a more financially rewarding occupation or to seek variety and challenge in their work. Apart from those who move into a managerial or administrative position, qualified tradespeople who leave their trade do not appear to have significantly higher incomes than those who remain. Of those who leave to improve their pay or career prospects, few return to their trade. Dissatisfaction with the level of job security and the physical conditions of the job were least responsible for attrition.

Role of training in retaining skilled tradespeople

This section presents a summary of tradesmen's views regarding the role of training in promoting career paths. Two data sources have been consulted. The ABS Education and Training Survey 1997 asked workers about training courses they have attended over the last 12 months. Tables 47 and 31 show that the overwhelming majority (84 to 85%) of trade-qualified workers and employed tradespeople thought that their training within the last 12 months had improved their job performance. While high in absolute terms, this is lower than other classes of skilled labour, 93.6% of whom thought that training had improved their job performance. However, employees who undertook some form of training were quite unlikely to believe that it would lead to some type of promotion. Only about one in five employees who either held a trade certificate or were working in the trades thought that the training would lead to a promotion. This however, was a slightly higher proportion than for other classes of skilled labour.

Table 47: Whether training course improved job performance for (a) people whose 3 highest qualifications included a skilled vocational certificate*, (b) employed tradespeople and (c) people employed in other skilled jobs, Australia, 1997

	(a) Formal trade qualifications*	(b) Employed tradesperson	(c) Employed non-trade skilled job
	%	%	%
Did one or more training courses in 1997	42.0	32.6	58.1
Training (some or all) improved job performance	85.0	84.0	93.6
Training did not improve job performance	10.6	11.8	4.5
Unsure	2.3	1.6	2.0
No training courses in 1997	58.0	67.4	41.9

Notes:
*Natural and physical sciences, engineering, architecture and building areas only.
The population in this table is employed people and this differs from table 48.

Source:
ABS Education and Training Experience Survey, Confidentialised Unit Record File, 1997

Table 48: Whether training course helped obtain a promotion for (a) employees whose 3 highest qualifications included a skilled vocational certificate,* (b) employee tradespeople and (c) employees in other skilled jobs, Australia, 1997

	(a) Formal trade qualifications*	(b) Employed tradesperson	(c) Employed non-trade skilled job
	%	%	%
Did one or more training courses in 1997	36.9	28.6	54.3
Training (some or all) helped to obtain promotion	17.4	17.4	11.7
Training did not help obtain promotion	80.6	80.3	86.1
Unsure	3.1	3.3	2.8
No training courses in 1997	63.1	71.4	45.7

Note:
*Natural and physical sciences, engineering, architecture and building areas only.

Source:
ABS Education and Training Experience Survey, Confidentialised Unit Record File, 1997

Employed people who did not undertake any form of study over the last year were asked about the main factors which would have enabled them to study. According to table 49, about half of tradespeople qualified and employed in the trade thought there was no need for study and this was slightly higher than for the other skilled occupations. Of those who conceded that there was career value in further study, the most common reason for not studying was lack of time or unaccommodating work schedules. When people were asked about factors that would have enabled them to study, formally qualified tradespeople and workers in other skilled jobs were more likely to believe that further study did not make enough difference to work prospects compared with employed tradespeople generally (table 49). However a rewording of this issue to ask about factors preventing them from studying altered this relative ranking. According to table 50, employed tradespeople were less sanguine about the potential for training to assist their work prospects than qualified tradespeople and other classes of skilled workers. Knowledge about and the general provision of training course did not rank highly as a reason inhibiting further study.

The second data source consulted about the potential role of training has been the Melbourne Institute telephone survey of 13 800 householders across Australia[76] referred to above. Respondents were asked a series of questions about the role of short training courses for workers in their trade. A summary of these responses is presented in table 51. The weighted mean weights each respondent by how strongly they agree with the statement. A mean of 50 indicates that on average people are equally balanced for and against the proposition. Table 51 shows that while the average respondent did not think that training would improve wages, on balance they thought it has positive effect on job interest, job security and prospects for promotion. Respondents were most likely to agree with the proposition that training aided people's careers.

Table 49: Factors which would have enabled study in last 12 months for people who did not study in last 12 months and (a) whose 3 highest qualifications included a skilled vocational certificate*, (b) were employed tradespeople and (c) were employed in other skilled jobs, Australia, 1997

	(a) Formal trade qualifications*	(b) Employed tradesperson	(c) Employed non-trade skilled job
	%	%	%
Nothing	51.6	52.8	43.7
Reduction in work or better schedules	6.5	14.3	9.0
More time	10.0	12.5	13.3
More difference to work prospects	15.9	4.6	12.9
More of employer support	1.4	0.2	1.4
More of information or suitable courses	2.2	1.1	1.9
More places available	0.3	0.4	0.2
More of pre-requisites	0.2	0.2	0.2
Personal reasons	1.9	5.8	3.3
Other	8.9	5.9	11.1
Total	**100.0**	**100.0**	**100.0**

Note:
*Natural and physical sciences, engineering, architecture and building areas only.

Source:
ABS Education and Training Experience Survey, Confidentialised Unit Record File, 1997

[76] Excluding the Northern Territory.

Table 50: Main reason did not study in last 12 months and (a) whose 3 highest qualifications included a skilled vocational certificate,* (b) were employed tradespeople and (c) were employed in other skilled jobs, Australia, 1997

	(a) Formal trade qualification*	(b) Employed tradesperson	(c) Employed non-trade skilled job
	%	%	%
No need	50.8	53.8	41.4
Too much work or schedules unsuitable	17.2	5.4	20.1
Lack of time	13.0	9.5	15.1
Little difference to work prospects	4.2	14.7	4.1
Lack of employer support	0.3	1.6	0.2
Lack of information or suitable courses	1.3	2.2	0.9
No places available	0.3	0.5	0.2
Lack of pre-requisites	0.1	0.4	0.0
Personal reasons	5.6	1.8	6.0
Other	4.9	9.2	6.9
Total	**100.0**	**100.0**	**100.0**

Note:
*Natural and physical sciences, engineering, architecture and building areas only.

Source:
ABS Education and Training Experience Survey, Confidentialised Unit Record File, 1997

Table 51: Short trade courses for experienced tradesmen help them get...

	...higher wages	...a promotion	...a more interesting job	...better job security	...further in their careers
Strongly agree	9.6	12.3	13.0	12.7	19.7
Agree	39.0	44.1	46.2	43.5	53.8
Neither agree nor disagree	9.1	7.8	9.1	6.1	5.6
Disagree	24.8	21.2	17.6	23.2	9.9
Strongly disagree	7.5	4.3	3.7	6.4	1.8
Weighted Mean[1]	**49.2**	**54.5**	**56.4**	**54.0**	**65.6**

Note:
[1]Weighted average of 'strongly agree' by 100, 'agree' by 75, 'neither...' by 50, 'disagree' by 25, 'strongly disagree' by 0.

Source:
Melbourne Institute Omnibus Survey, October 1999 to August 2000, weighted by age, sex and location

Trends in post-apprenticeship training

Chapter 4 indicated that, between 1989 and 1997, the proportion of post-trade certificate formal training has risen from about one in three to two in five. Formal training may have included in-house instruction or attendance at an external TAFE college or private provider. This section examines the last few years of TAFE enrolments by trade to see if this trend is mirrored in the TAFE sector. Figures 26 to 29 present both total enrolment numbers and the age distribution of enrollees from 1994 to 1998. They indicate that there has been a strong growth in post-trade (AQF IV) in the metal trades but a fall in the electrical trades and an uneven pattern in building and vehicle. There has been little clear trend in the distribution by age in any trade group. While the data period for TAFE data presented below (1994–98) and

the ABS data in table 31 (1989–97) are clearly not comparable, differences in these figures may also have arisen because much of the post-trade vehicle, building and electrical training is done in-house or in other non-TAFE institutions.

Figure 26: Age distribution and total number of enrollees in post-trade VET courses, metal trades, 1994–98

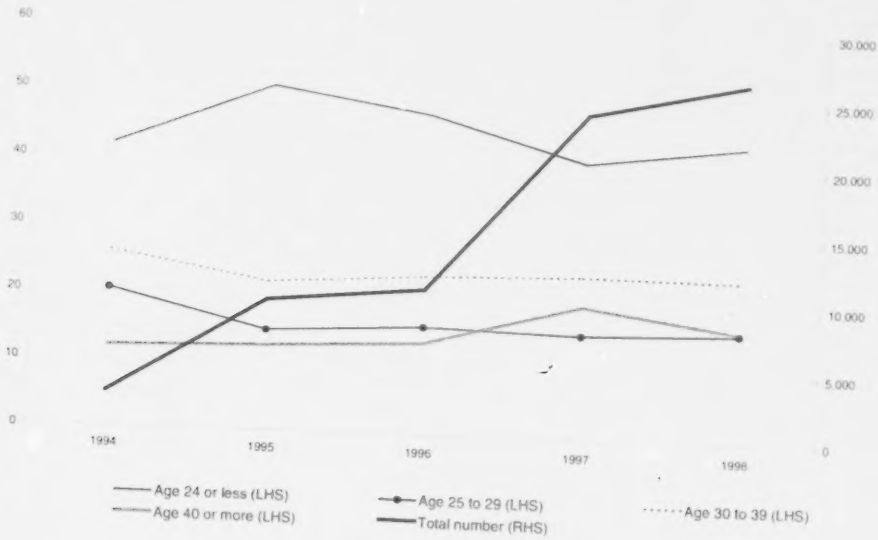


Figure 27: Age distribution and total number of enrollees in post-trade VET courses, building trades, 1994–98

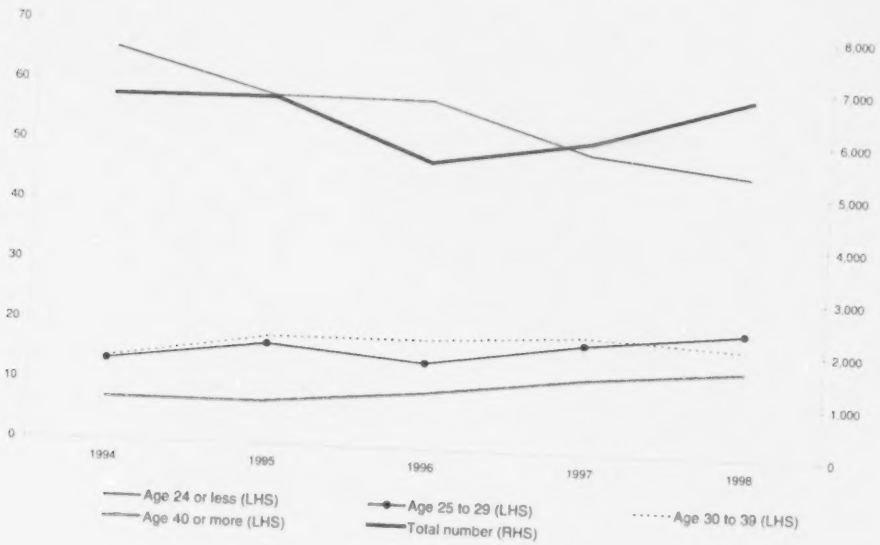


Figure 28: Age distribution and total number of enrollees in post-trade VET courses, electrical trades, 1994–98

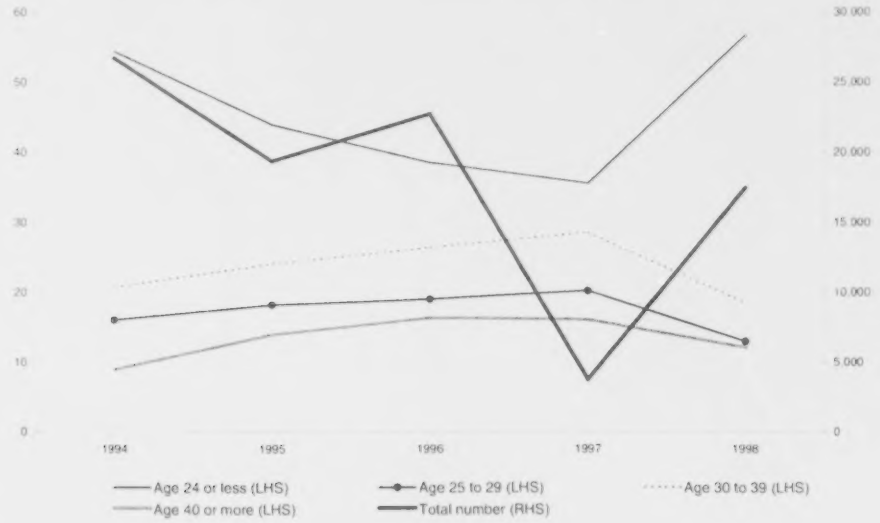
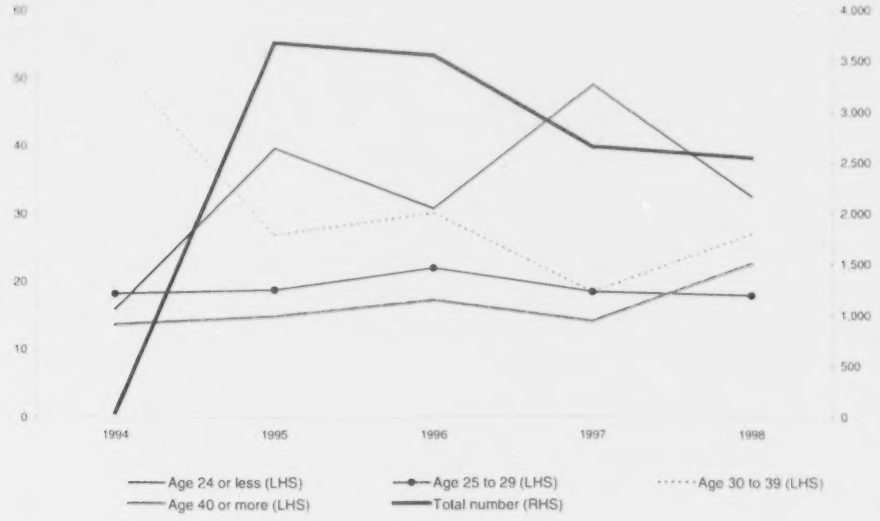


Figure 29: Age distribution and total number of enrollees in post-trade VET courses, vehicle trades, 1994–98



Conclusion

Careers paths for tradespeople, as measured by their incomes, appear to be considerably flatter compared with other major classes of skilled worker. Qualified tradespeople who leave the trade for managerial jobs also improve their earnings on average but those who leave for other occupations do not. Tradespeople who take up unskilled labouring jobs generally suffer

a decline in earnings. According to the 1996 census, the incomes of unqualified tradesmen were lower than the incomes of qualified men working in intermediate or elementary production jobs. It is cheaper for employers to upgrade than to try to attract out-of-trade qualified tradesmen back to the trade.

Qualified tradespeople leave the trade for a range of reasons, the most common being to get a better job or more interesting job. Coming a close second in importance were people who left to get better pay or seek a promotion. These findings reinforce the analysis on job satisfaction in chapter 5. Few people were discouraged by the conditions of work and only a small percentage left because of a lack of work.

This section has sought to inquire whether participation by qualified tradespeople in more post-trade training courses would produce more highly skilled production workers who are more productive and can thus command higher wages. Unfortunately the empirical evidence is contradictory. The 1997 ABS education and training survey suggests that workers who have undertaken further training improved their work efficiency but the 2000 Melbourne Institute survey implies that on balance they do not lead to higher wages. The ABS survey indicates that training does not have much impact on the participants' promotion prospects; however, in the Melbourne Institute survey, respondents claimed that on average, training courses lead to better and more interesting jobs and had significant effects on career paths. Post-trade training has increased since the late 1980s. The most consistent evidence suggests that TAFE is meeting the post-trade training needs in the metal trades but is not providing much post-trade training in building, vehicle and electrical trades.

It is possible that heterogeneity within the trade group, or differences in time period, has contributed towards these varied responses. Some trades or some types of tradespeople may be affected differently by training. Unfortunately the level of information available at hand does not permit us to reach a conclusion.

7 Conclusion

What does the research indicate?

A study of how adequately the vocational training system has met the quantity of demand for skilled labour and the role of the award restructuring reforms of the late 1980s in promoting more pathways to skilled status, must necessarily begin by asking whether formal training is needed at all. Many, if not a majority, of work skills for all occupations are learned informally on the job. Off-the-job education and training and formal on-the-job training are supplements to accelerate the normal learning process. If efficient, they should compress the total skill acquisition process into a shorter space of time and in a cost-effective manner. If formal education and training is ineptly applied, then it is expected that workers and employers seek ways to circumvent it.

A priori it is expected that optimal proportions of formal to informal skill acquisition should vary according to the prior skills and education of the potential trainees, the relative value placed by employers and consumers on accomplished skill versus incomplete skills,[77] and the theoretical content of the skills. With respect to the latter, Douglas (1921, p.234) has argued that:

> *Whenever a trade, craft of profession has developed to such a stage that general principles and scientific causation can be abstracted from personal contact, then apprenticeship as the sole or chief method of training for that occupation declines. That which was an art becomes a science with more of less fixed rules and generalised method or procedures.*

For the traditional manual trades training system, it is important to inquire whether the structure and mode of operation has been appropriate for the occupations it served. Evidence compiled for this study suggests that historically this has not been the case. By 1996, about one in five trade-qualified workers were employed in lesser-skilled occupations and about one in three working tradespeople did not possess trade qualifications. A telling condemnation of an institution is when its primary parties 'vote with their feet' and seek to transact their business outside the system that was created to serve them.

People who undertake trade qualifications receive a poor pecuniary and non-pecuniary return compared with unqualified workers who mainly rely upon informal skill acquisition processes. Employers do not appear to value highly many existing trade skills. There has been a large minority of qualified people working in semi-skilled and unskilled jobs at least since the early 1970s, and recent data indicate that most of these ex-trade workers have left because the pay does not compensate for the lack of variety, career potential and challenge that trade work offers.

On the other hand, employers who need trade skills appear content to upgrade less skilled employees to undertake trade work. While this issue has not been fully explored in this study, some evidence suggests that firms which upgrade have strong preferences for skills which are specific to the firm or are particular to some individuals. In some trades, the strongest trend seems to be for non-TAFE post-training provision.

[77] For example, there is a big difference in value placed on an accomplished versus partly skilled musician or surgeon, and a small difference between the values placed on a very accomplished versus partly skilled labourer or factory worker.

The conventional vocational training system has also trained workers who later enter managerial, professional and technical occupations. Exit from trade jobs into managerial, professional or technical jobs is the main way qualified tradespeople can improve their earnings over the life cycle. While only a minority of skilled workers move into these occupations, this trend has been growing over time as these occupations expand. Despite this trend, the majority of tradespeople (80%) moving into these occupations do so without obtaining higher qualifications. Compared with other occupations, people with trade qualifications and employed tradespeople were less likely to believe that short training courses improved their job performance or would lead to a promotion. Limited evidence on post-trade training enrolments finds a positive trend only for the metal trades.

Data from men working in the metal, building , automotive and electrical trades, indicate that the acquisition of a one-year formal vocational certificate has nearly the same effect on earnings as a 3-to-4-year qualification, but has a significantly greater effect than an additional year of informal skill acquisition through work experience. This suggests that shorter trade courses may be a more efficient mode of complete skill acquisition for some trades.

While the conventional apprenticeship system has worked and will continue to work well for other employers and workers, the areas not served by this system are not small niches but sizeable sections of the trade labour market. A more flexible system of trade training, which has allowed AQF II certificate in the declared vocations introduced from 1994, is beginning to cater for these needs. However, as the process of introducing formal apprenticeship into Victoria during the 1920s and traineeships during the 1980s has shown, it takes a considerable time and effort to change the training culture in this labour market.

Despite the general level of dissatisfaction with trade employment, especially as workers approach middle age, several independent data sources imply that training pathways for semi- and unskilled adults have in fact become more prevalent since the early 1990s when the award restructuring process began. Part of this growth may be attributable to the Training Guarantee or the large injection of Commonwealth funds from 1992. However, this increase in formal adult training has emerged from a low base. Other types of post-school qualifications provided by the tertiary education sector have more established routes for adults seeking to upgrade their qualifications.

Accordingly, on the balance of probabilities, while the award restructuring process deserves some credit for assisting the process of continuous skill development, there has only been a slow growth of adult participation in this process. Either the types of recognition and credit for partly skilled adults are not well known throughout the industry, or they are too difficult, inconvenient and costly to be worth pursuing. Low interest from unskilled or semi-skilled workers is consistent with the findings of poor pecuniary and non-pecuniary rewards from undertaking trade work.

What should be done?

Current problems with the training system appear to arise not so much from the numbers in training, but from the level of training qualifications on offer and the high attrition rates from the trades. Ideal training or education systems are self-regulating. This means that signals from customers and new technologies are transmitted through firms to prospective students and workers and training providers without third party intervention. Three basic conditions are required for such a flexible and accommodating system:

- Regulatory and institutional impediments should be removed. The award restructuring process which began in the 1980s has prompted most prerequisite legislative and award reforms. Training packages, and the provision for AQF II level certificates in the traditional trades, which have been operational since 1999 and 1994 respectively, should be regarded as a major advance in this area. However, the path for the skill recognition of workers trained through means other than the apprenticeship or the TAFE system, still

appears complicated and marginal to the training system. This is especially the case for adult workers who cannot attend classes during normal business hours.

- The incentive structures to encourage workers to train and remain in jobs that use their skills should be strengthened. Without the correct incentives for school leavers and unqualified workers to complete a training course, there is little point removing impediments. With high leakage rates out to other occupations, training becomes an expensive skill creation option. Specifically, the wage differential for skill should be increased, especially the increment for years of experience. Conditions of work, prospects for advancement and the non-pecuniary rewards from certain jobs should be improved to encourage the highly skilled to remain within their trade.
- Finally, the training and work culture of the relevant industries needs to be educated to keep abreast of the new developments in the training system. This is a difficult and expensive task to accomplish and probably requires extensive site visits as well as a continuation of existing information material. The flow of information needs to be ongoing and, of course, two-way.

Further research

Two major themes emerge from this study which are important for an efficient, self-regulating vocational training market. Firstly, the issue of whether there should be an expansion and widespread promotion of basic vocational qualifications in the metal, building, electrical and vehicle trades that would meet the market ground currently occupied by upgraded tradespeople can be further explored. The second theme concerns the incentive for workers to obtain formal training and thereafter consistently applying these acquired skills to related occupations. Part of this investigation would involve looking at why wages over the life cycle are so low or flat for qualified workers compared with unqualified workers.

Research on the first topic should include the reasons employers hire unqualified workers to do trade work. Lack of data on this topic has forced the study to rely upon old ad hoc surveys and data that in many cases do not provide enough detail to make an argument or conclusion definite.

Suggested research questions include:

- whether informal skill acquisition is or is not a more efficient mode of training for some trades (includes employer perceptions of the skill adequacy of upgraded workers)
- level of knowledge held by employers and workers about AQF II level qualifications
- reasons for lack of sponsorship of existing employees as AQF III apprentices for upgrading employers
- reasons for lack of sponsorship of existing employees as AQF II apprentices for upgrading employers

Research for the second topic should look at which employers are claiming shortages of, or difficulties attracting skilled workers and reasons why they don't increase the pecuniary or non-pecuniary employment package offered to their skilled workforce (but not their lesser skilled workers). Higher life cycle rewards for vocationally trained workers will affect interest by school students in apprenticeships (both the calibre and number of students) and should stem attrition from the trades.

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Appendices

A. State training legislation, 1980, 1990 and 2000

Table A 1: State government training legislation, 1980

	NSW	Victoria	Queensland
1. Act	*Apprentice act, 1969*	*Industrial training act, 1975*	*Industry and commerce training act, 1979*
2. Relevant functions and duties of regulatory body	To review the requirements for skilled labour and adequacy of apprenticeship as a means of training skilled tradesmen	To review the requirements for skilled labour and adequacy of apprenticeship as a means of training skilled tradesmen	To review the requirements for skilled labour and adequacy of apprenticeship as a means of training skilled tradesmen
	To review the desirability of providing other systems of training for skilled occupations	To review the desirability of providing other systems of training for skilled occupations	To review the desirability of providing other systems of training for skilled occupations
			Has to conduct regular manpower planning and make recommendations if there are skill shortages
			May at any time recommend the establishment of full-time VET course as alternative to apprenticeship
3. Requirements for tradesmen's credentials	Attendance at courses is compulsory	Attendance at courses is compulsory	Attendance at courses is compulsory
	Certificate of Proficiency only if satisfies the course requirements	Certificate for people who attain the prescribed standards of education and trade experience	Certificate if successfully completes apprenticeship. Certificate of Proficiency if gets average of 75 on exams
	If skills and knowledge inadequate, then can extend the indenture term		If skills and knowledge inadequate or if fails college exams, then can extend the indenture term or have indenture cancelled
	Can shorten the indenture term for outstanding studies at course or in employment		Can shorten the indenture term by 7 months for outstanding course results
4. Employment of non-apprenticed minors in trade	Forbidden	Forbidden	Forbidden

Table A 1: State government training legislation, 1980 (cont.)

	NSW	Victoria	Queensland
5. Career paths for adult trainees	No upper age limit	Allows 'adult apprentices' (in proclaimed adult apprentice trades), but they must apply especially to the Commission	Allows adult apprentices, but they must apply especially to the Commission
		Commission may reduce the indenture term for adult apprentices for 'such period as it sees fit' for prior skills and practical knowledge	
			Training agreement may also be arranged between trainee technicians and other forms of industry re-training. Has power to make regulations with respect to these other forms of training
6. Credits for prior skills and knowledge	May reduce the indenture term for higher educational attainment	Reduced indenture term for pre-apprentice graduates	Reduced indenture term for pre-apprentice or pre-vocational graduates

Table A 2: State government training legislation, 1980

	South Australia	Western Australia	Tasmania
1. Act	*Apprentices act, 1950 (Amendment 1978)*	*Industrial training act, 1975*	*Apprenticeship act 1942*
2. Relevant functions and duties of regulatory body	The board can make any recommendations for the training and education of apprentices generally	Advise the minister with respect to the apprenticeship trades and the industrial training trades	Enquire into the conditions of trade and ascertain the number of apprentices that should be employed
3. Requirements for tradespeople's credentials	Attendance at courses is compulsory	Attendance at courses is compulsory	Attendance at courses is compulsory
	Certificate of Proficiency only if satisfies the course requirements	Certificates for people who attain the prescribed standards of education and trade experience	Certificates for people who have attained the prescribed standard
			If skills and knowledge inadequate or if fails college exams, then can extend the indenture term or have indenture cancelled
			Can shorten the indenture term by 7 months for outstanding course results
4. Employment of non-apprenticed minors in trade	Forbidden	Forbidden	Forbidden
5. Career paths for adult trainees	Mature-age apprentice (over 19) not permitted without prior approval and it does not impair the opportunity for young people to gain an apprenticeship	No mention	Allows adults apprentices, but they must apply especially to the Commission
			Training agreement may also be arranged between trainee technicians and other forms of industry re-training. Has power to make regulations with respect to these other forms of training
6. Credits for prior skills and knowledge			Reduced indenture term for pre-apprentice or pre-vocational graduates

Table A 3: State government training legislation, 1990

	NSW	Victoria	Queensland
1. Act	*Industrial and commercial training act, 1989*	*Vocational education and training act 1990*	*Employment, vocational education and training act, 1988*
2. Relevant functions and duties of regulatory body	Investigate matters relating to industrial and commercial employment and the need for industrial and commercial training	Inquire into the VET needs and skill requirements of the State	Advise the minister on a VET strategy
		Set the objectives and priorities for VET	Identify major training issues
	Advise minister on proposed courses and the way training should be conducted	Provide schemes for the training and re-training of adults	
		Review existing programs to determine whether they meet the training and skill requirements of industry	
3. Requirements for tradespeople's credentials	Attendance at courses is compulsory	Attendance at courses is compulsory	Attendance at courses is compulsory
	Craft Certificate if apprentice has been adequately trained	Certificate if successfully complete an approved training program	Training executive can determine whether an apprenticeship is completed through effluxion of time or reached by level of competence
	Certificate of Proficiency if satisfies the course requirements		
	If skills and knowledge inadequate, then can extend the indenture term	If skills and knowledge inadequate, then can extend the indenture term	
	Can shorten the indenture term for outstanding studies at course or in employment	Can shorten the indenture term if skills and knowledge are acquired early	Indenture term may be reduced if high standards are reached
	Certificate may be issued to people who have not completed an approved training program (in a vocation) but have the required skills and knowledge. Depends on length of time in trade, qualification and other relevant matters	Certificate may be issued to people who have not completed an approved training program (in a vocation) but have the required skills and knowledge	Certificate may be issued to people who have not completed an approved training program (in a vocation) but have the required skills and knowledge
	Recognises defence trade training		
4. Employment of non-apprenticed minors in trade	Forbidden	Forbidden, but board may grant exemptions	Forbidden

Table A 3: State government training legislation, 1990 (cont.)

	NSW	Victoria	Queensland
5. Career paths for adult trainees	No upper age limit on apprentices Credits can be given for previous work experience	No upper age limit on apprentices	Training executive can approve full-time education training courses as an alternative to apprenticeship courses in a trade. These courses may need a further period of apprenticeship Can make decision about other employees who desire training in trade courses, work experience or both
6. Credits for prior skills and knowledge	May reduce the indenture term for higher educational attainment Credits can be given for previous work experience	Reduced indenture term for pre-apprentice graduates Commission may reduce the indenture term for 'such period as it sees fit' for prior skills and practical knowledge	Reduced indenture term for pre-apprentice or pre-vocational graduates

Table A 4: State government training legislation, 1990

	South Australia	Western Australia	Tasmania
1. Act	*Industrial and commercial training, 1981 (amendments 1987, 1989)*	*Industrial training act, 1975*	*Industrial and commercial training act, 1985*
2. Relevant functions and duties of regulatory body	Review what training is or should be provided in order to develop knowledge and skills required by industry. Includes any new form of training	Advise the minister with respect to the apprenticeship trades and the industrial training trades	Review system and methods of training in declared vocations
	Determine how apprenticeships should be provided		Authority can determine and approve such schemes of training as it considers necessary to fulfil its functions in any occupation but the declared vocations
3. Requirements for tradespeople's credentials	Attendance at courses is compulsory	Attendance at courses is compulsory	Attendance at courses is compulsory
	Certificate of Proficiency only if satisfies the course requirements	Certificates for people who attain the prescribed standards of education and trade experience	Certificates for people who have attained the prescribed standard
	Can reduce the indenture term by 25% if apprentice is competent early		If skills and knowledge inadequate or if fails college exams, then can extend the indenture term
			Person may apply to obtain a certificate based on prior work experience of at least 6 years in a trade or prior training in any occupation but the declared vocations
4. Employment of non-apprenticed minors in trade	Forbidden. Traineeships are not permitted in an apprenticable trade	Forbidden	Forbidden
5. Career paths for adult trainees	No discrimination on the basis of age	No mention	No mention
6. Credits for prior skills and knowledge	Reduced indenture term for pre-vocational graduates		Reduced indenture term for pre-vocational graduates
7. Limitations on trade course provision			

Table A 5: State government training legislation, 2000

	NSW	Victoria	Queensland
1. Act	*Industrial and commercial training act, 1989*	*Vocational education and training act, 1990* *Vocational education and training (training framework) act, 1997*	*Vocational education, training and employment act, 1991* *Vocational education and training (industry placement) act, 1992, Sect 3*
2. Relevant functions and duties of regulatory body	Investigate matters relating to industrial and commercial employment and the need for industrial and commercial training Advise minister on proposed course and the way training should be conducted	Advise the minister about the development of frameworks for vocational education and training in Victoria Identify major vocational education and training issues and make recommendations to the minister about those issues	Establish mechanisms for the provision of vocational education, training, employment services responsive to the needs of industry and the community Advise the minister on vocational education, training and employment strategies Provide industry placement for students in structured vocational education and training programs
3. Requirements for tradespeople's credentials	Attendance at courses is compulsory	Attendance at courses is compulsory	Attendance at courses is compulsory
	Craft Certificate if apprentice has been adequately trained Certificate of Proficiency if satisfies the course requirements	Certificate if successfully complete an approved training program	Certificate of completion if satisfactorily complete an approved training scheme or college-based training scheme.
	If skills and knowledge inadequate, then can extend the indenture term	If skills and knowledge inadequate, then can extend the indenture term	If skills and knowledge inadequate, then can extend the indenture term or cancel it
	Can shorten the indenture term for outstanding studies at course or in employment		Indenture term may be reduced if high standards are reached
	Certificate may be issued to people who have not completed an approved training program (in a vocation) but have non-NSW qualifications and experience *or* the required skills and knowledge. Depends on length of time in trade, qualification and other relevant matters Recognises defence trade training	Certificate may be issued to people who have not completed an approved training program (in a vocation) but have the required skills and knowledge	Certificate may be issued to people who have not completed an approved training program (in a vocation) but have required skills and knowledge. Depends on length of time in trade, qualification and other relevant matters

Table A 5: State government training legislation, 2000 (cont.)

	NSW	Victoria	Queensland
4. Employment of non-apprenticed minors in declared/ proclaimed trade	Permitted only if the occupation is also a declared calling or the employer is the employee's parent. The board determines which occupations are declared callings	Declared vocations are abolished (1997) Work experience placements for school children enrolled in a TAFE course are permitted	Forbidden except for work placements Work experience placements for school children are permitted for up to 240 hours a year
5. Career paths for adult trainees	Credits can be given for previous work experience	No upper age limit on apprentices Board may determine whether any apprentice may be engaged as full time or part time	No upper age limit on apprentices Pre-apprenticeship, pre-vocational or full-time educational and training courses of instruction as an alternative to apprenticeship training are permitted in an apprenticeship calling A further period of training may be necessary for persons who have completed these courses to enable them to become competent in that apprenticeship calling
6. Credits for prior skills and knowledge	May reduce the indenture term for higher educational attainment Credits can be given for previous work experience	Credits can be given for any prior qualifications, training or experience	Reduced indenture term for pre-apprentice or pre-vocational graduates Reduce the training period for prior experience and knowledge
7. Limitations on trades course provision		A person must not conduct any course of training in a declared vocation without the approval of the Board	

Table A 6: State government training legislation, 2000

	South Australia	Western Australia	Tasmania
1. Act	*Vocational education, employment and training act, 1994*	*Industrial training act, 1975*	*Vocational education and training act, 1994*
2. Relevant functions and duties of regulatory body	Develop and recommend to the minister vocational and adult community education and training needs and proposals for meeting those needs	Advise the minister with respect to the apprenticeship trades and the industrial training trades	Develop and recommend to the minister policies relating to vocational education and training
3. Requirements for tradespeople's credentials	Attendance at courses is compulsory	Attendance at courses is compulsory	Certificate is given for successful completion of the training agreement. The duration of a training agreement may be expressed in terms of years and months and in terms of achievement of competencies
	Can reduce the indenture term by 25% if apprentice is competent early	Certificates for people who attain the prescribed standards of education and trade experience	
4. Employment of non-apprenticed minors in trade	No mention		No mention Allows unpaid placement in a trade for less than 240 hours a year
5. Career paths for adult trainees	No discrimination on the basis of age		No mention
	Part-and full-time training agreements permitted	Forbidden	
	An employer must not undertake to train a person in a trade except under a contract of training unless they have already completed a contract of training	No mention	
6. Credits for prior skills and knowledge	Indenture term credits for prior skills and experience		No mention
7. Limitations on trades course provision	Forbidden to offer or provide a course of education and training of a class required by regulation to be accredited under this Part unless the course is so accredited		An employer must not undertake to train a person in respect of a declared vocation without permission from the Training Agreements Committee.

B. Main data sources consulted

The Youth-in-Transition data

The Youth-in-Transition (YIT) survey, undertaken by the Australian Council of Education Research, follows cohorts of youth from their mid-teens to mid- or late twenties. The survey focuses upon patterns of participation in training and education, participation in the labour market and transitions within and between the two. The analysis used for this paper uses data for the cohorts of persons born in 1961 and in 1970. The 1961 cohort undertook tests as part of the Australian Studies in Student Performance project in 1975, the year in which the individuals turned 14. Follow-up surveys were conducted in each year from 1978 to 1984, in 1986 and 1987, and then again annually from 1989 to 1994. Hence data are available through to the year in which the cohort turned 33 years old. The data set includes responses for the 6260 individuals who responded to at least the first and second surveys (1975 and 1978).[78]

For the 1970 cohort, a nation-wide sample of 5472 ten-year old students completed standardised achievement tests in basic reading and mathematics skills in 1980. In 1985, a sub-sample of the cohort (then aged 15) was surveyed for the first time, and annual surveys conducted up until 1994, the year in which the cohort turned 24. Table B 1 shows the number and proportion of the initial cohort participating in each year of the survey.

Table B 1: The YIT survey—sample numbers by year

a. 1961 Cohort

Initial	1979	1980	1981	1982	1983	1984	1986	1987	1989	1990	1991	1992	1993	1994
3183	1961	2095	1950	1764	1435	1291	1003	1494	1139	1036	1111	1083	991	1064
100%	62%	66%	61%	55%	45%	41%	32%	47%	36%	32%	35%	34%	31%	33%

b. 1970 cohort

Initial	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
2835	1671	1315	1200	944	808	696	771	702	598	666
100%	59%	46%	42%	33%	29%	25%	27%	25%	21%	23%

ABS education and training surveys

The ABS education and training surveys are generally acknowledged as the richest source of training and education information in Australia. These household surveys are not longitudinal but have been conducted on three separate occasions, 1989, 1993 and 1997, and thus permit analysis of changes over time.[79] The samples used for all three surveys were similar in structure to the private dwellings component of the monthly population survey. The samples are thus intended to be broadly representative of the population.[80] The samples used in all three surveys were also very large. The sample for the 1997 survey, for example, involved an initial sample of around 18 600 dwellings. After sample loss (for example, because the building was derelict or was under construction, or because there were no residents

[78] This is assumed to be the case since there is no variable indicating whether or not an individual was in the sample in 1978.

[79] A summary of results from the 1997 survey is provided in ABS (1998). The ABS plans to conduct this survey again in 2001.

[80] The only groups excluded from the population for the 1997 survey, for example, were the usual groups excluded from supplements to the monthly population survey (e.g. members of the permanent defence force, overseas residents, residents of institutions), other persons living in non-private dwellings (such as hotels, motels and caravan parks) and persons who were not in the labour force at the time of the survey and who were also not in full-time or part-time education (ABS 1998, p. 79).

within a specific dwelling who were within the scope of the survey), this resulted in an effective sample of 13 800 dwellings. This, in turn, yielded approximately 22 700 completed interviews (ABS 1998, p.80).

As discussed in VandenHeuvel (1997 p.834), training is a very broad concept which arguably encompasses 'any activity which assists individuals to develop, learn and maintain skills related to job performance and competency'. Consequently, training statistics typically distinguish between different types of training. The ABS (1998), for example, distinguished between formal training courses, informal on-the-job training (sometimes also referred to as unstructured training) and educational study. Within the training course category, the ABS also distinguished between those delivered by the employer within the firm (in-house courses) and those delivered by other organisations outside the firm (external training courses). In this analysis, however, this distinction is mostly ignored.

Given the focus in this study on trades-related skills, considerable emphasis is placed here on the educational study component. In particular, attention is focussed on study undertaken while in employment that leads to a vocational qualification. Such qualifications are, in turn, divided into two broad categories: (i) skilled vocational qualifications; and (ii) basic vocational qualifications. The former typically involves two-to-four years' study and 'provide individuals with the knowledge and skills necessary to work in a specific vocation, recognised trade or craft, that requires a high degree of skill in a range of related activities' (ABS 1998, p.127). Courses of the latter type range from just one semester to those of one year's duration and 'provide individuals with the practical skills and background knowledge necessary for employment at the operative level in many different fields' (ABS 1998, p.122).

The reference period for each survey was the preceding 12 months. Consequently, the training incidence data presented below, which are based on simple head counts, relate only to any training or study undertaken during that period. As such, these data provide extremely crude measures of training participation. Data on hours spent on formal training courses are available but it is questionable whether they are superior. Previous Australian research (for example, Baker & Wooden 1991; Miller 1994; VandenHeuvel & Wooden 1996) has found it very difficult to predict the number of hours spent in formal training from data on demographic and job characteristics, suggesting that training hours may be a function of institutional factors which determine the length of training courses, rather than a function of preferences of either individuals or firms.

Quantifying informal training is especially problematic. The ABS defines such training as the undertaking of specific on-the-job activities to improve jobs skills, including asking questions of co-workers, teaching one's self, being shown how to do the work, and simply watching others. This definition is extremely broad and arguably too broad to convey any useful information (OECD 1991, p.142). It can be expected, for example, that the large majority of employees will respond that they had undertaken at least one of these activities, especially given the reference period covers an entire year.

Australian Workplace and Industrial Relations Survey (AWIRS)

The 1995 AWIRS is based on a random sample of 3892 workplaces with 20 or more employees—stratified by industry and size—selected from the ABS Business Register.[81] Of these, 2732 were identified as being eligible, and a further 185 were not used.[82] The remaining 2547 workplaces yielded the 2001 interviews required by AWIRS. The survey was conducted as separate face-to-face interviews with (where possible) a general manager, an employee relations manager, and a union representative where applicable. The exception was the workplace characteristics questionnaire, which was completed at the workplace before the interviews started.[83]

[81] The sample excludes agriculture, forestry, fishing and defence.
[82] No reason for the exclusion of these 185 workplaces was given in the technical notes.
[83] Unfortunately not all workplaces completed this questionnaire, which led to some loss of the sample.

International Social Science Surveys Australia

These are mail-out (mail back, completed by individuals themselves) surveys of social and economics issues undertaken by the Australian National University (ANU) which have been conducted annually or biennially since 1984. The surveys cover persons aged 18 years and over on the Australian electoral rolls. They produce a stratified random sample. The data are available from the ANU Social Sciences Data Archives.

C. Model of job satisfaction

The model

Most empirical studies model job satisfaction in the following manner:

$$(1) \qquad u = u(y, h, i, j)$$

where u is an individual's utility from working, y is income, h is hours of work and i and j are sets of individual and job parameters respectively (Clark & Oswald 1996, p.361; Watson et al. 1996; Clark 1997; Ward & Sloane 2000). This approach immediately combines both pecuniary and non-pecuniary returns to working with a view to examining an overall measure of job satisfaction.

Variations on the above basic model exist and include the introduction of a benchmark measure against which individuals compare themselves. The associated loss (or gain) in utility arising from such comparisons can be viewed as being one of the key mechanisms for the smooth operations of a competitive economy. Clark and Oswald (1996), Clark (1997) and Ward and Sloane (2000) assume the model

$$(2) \qquad u = u(y, y^*, h, i, j)$$

where y^* is a comparison or reference income level. They find that measures of comparison income are significantly and negatively correlated with overall job satisfaction. However, it is possible that y^* is correlated with important unobserved characteristics that play a greater role in causality than y^* itself. Furthermore, it is not clear that, if benchmarks are going to be examined, they should be restricted to an income measure. It is also unclear how individuals form such benchmarks and therefore how they should be constructed to enable empirical examination.

There are other difficulties with models such as (1) or (2), some of which can be addressed. First, total returns to working and human capital (or other characteristics) are likely to be interdependent. Human capital characteristics may be endogenous to an individual's preferences for pecuniary and non-pecuniary rewards. An individual who receives high total returns from working is more likely to be satisfied with their employment and may be more likely to invest in further employment-specific human capital. To the extent that high total returns reflect high labour productivity, an employer is more likely to encourage the investment in employment-specific human capital by that individual, *ceteris paribus*. A reinforcing virtuous or vicious cycle may set in.

Second, people who have low levels of pecuniary and non-pecuniary job satisfaction are more likely to leave the labour force than the more satisfied, thus biasing the sample. Some version of a Heckman selection model is required to test and control for biased selection.

Third, some of the independent variables may be outcomes of the other variables, for example, personal characteristics (such as ability), and social class may determine qualifications.

A final, but more serious, difficulty with the above models is that they do not clearly explain why the listed variables should be regarded as determinants of job satisfaction. Usually, j in

the above equations includes industry, occupation and firm characteristics. It is possible that some work characteristics such as occupation and industry are associated with certain levels of job satisfaction, but do not necessarily determine satisfaction. For example, a person may choose a low-paying but intrinsically rewarding job because of their personal preferences and available choices, but the job does not cause this choice. Similarly, a strong preference for pecuniary reward will encourage the individual to choose a job with longer working hours, but longer working hours is not a causal factor in this choice (although sex and family structure may be). Regression analysis based upon (1) or (2) should be interpreted as a multi-dimensional cross-tabulation rather than a causal relationship.

Essentially, unconstrained utility-maximisation as depicted by (1) or (2) above makes little intuitive sense. The model used for this paper begins with the postulate that observed job matches are chosen by utility-maximising individuals subject to a limited job opportunity set.[51] Most people have more than one potential job available to them and each job will vary according to how much it pays and how much non-pecuniary satisfaction it offers. An individual's labour market characteristics, where they live and the state of the economy will determine how many jobs are potentially open to them. It is assumed that individuals' preferences for pecuniary versus non-pecuniary satisfaction determine which job from this set they will choose. The outer boundary of available jobs forms a 'jobs opportunity frontier' (analogous to the consumers' budget constraint). In this paper it is assumed that this frontier for each individual i, is determined by the state of the macroeconomy and local labour market, M, the individual's qualifications and schooling, Q_i and other characteristics that reflect work skills, X_i. The latter may include age, sex, years worked (as a proxy for the generic skills acquired through working) and weeks spent unemployed in the last year.

$$F_i = f(M, X_i, Q_i) \quad \forall i = 1,...n. \tag{3}$$

The total job satisfaction function is represented by:

$$U = N^{\alpha} W^{\beta} \tag{4}$$

where U is total job satisfaction, N is units of non-pecuniary satisfaction and W is units of pecuniary satisfaction. The parameters α and β reflect an individual's preferences and are a function of a person's individual characteristics such as age, social background and family structure. For a given job opportunity frontier, an individual can choose among jobs according to their mix of non–pecuniary and pecuniary returns. As such:

$$F_i \geq a_i N + b_i W \tag{5}$$

It is assumed that each individual maximises (4) subject to (3)

The first-order conditions for the solution can be found using a Lagrangean optimisation function to get

$$W = \left(\frac{\beta}{\alpha b} + \frac{1}{b}\right) f(M, X_i, Q_i) \tag{6}$$

Similarly:

$$N = \left(\frac{\alpha}{a\beta} + \frac{1}{a}\right) f(M, X_i, Q_i) \tag{7}$$

[51] While obvious objections can be made against the rational and utility-maximising assumption, it simplifies the analysis and works sufficiently well for the purposes of the model.

(6) and (7) give a pseudo 'expansion path' which represents the chosen locus of jobs (for given frontier and utility functions)[85]. It states that the individual's chosen (and thus observed) jobs are a function of the determinants of their job opportunity set, M, X, and Q, and the parameters of their utility function, α and β. It is expected that alternative variables which expand a person's job opportunity set, will enable them to select a job providing either higher pecuniary and/or non-pecuniary returns. In these cases no trade-off between to the two types of reward is required. It is only different personal preferences arising in part from socio-economic circumstances which determine how far individuals are prepared to trade off non-pecuniary satisfaction for pecuniary satisfaction. If the factors affecting job opportunity dominate the factors that influence personal choice, then pecuniary and non-pecuniary rewards will be positively correlated, as is most frequently the case in empirical studies of this type. It does not eschew some trade-off between pecuniary and non-pecuniary rewards according to the potential jobs on offer.

Employment characteristics such as occupation and industry are inherent to the job but are not determinants of the job choice unless they explicitly enter the measured levels of N or W or affect the parameters α, β, a and b. If they do enter into these measured levels then they are more likely to be part of the non-pecuniary returns of a particular employment that an individual will consider when making their employment choices. Under this methodology, non-pecuniary job satisfaction may be correlated with firm and job characteristics but it is not appropriate to see causality as running from one to the other.

Data and variable construction

The data have been derived from the International Social Science Surveys Australia which have been conducted annually or biannually in Australia since 1984 (see appendix B). These surveys cover a range of psychological, sociological and economic issues and are in unit record format. However some questions asked in these surveys have not been consistent over time and there have also been variations in the response choices. These factors necessitated the manipulation of the data and the omitting of certain years.[86] The surveys used in this analysis were restricted to 1984, 1986, 1987, 1994 and 1995.

Non-pecuniary job satisfaction has been measured as the sum of the responses to five job satisfaction questions. Are you satisfied with: the importance of your work and the feeling of accomplishment it gives you? The chance to use your skills and abilities? The people you meet? The security and predictability or your future? And, How satisfied are you with how interesting your work is, and the enjoyment you get from it? Each statement is ranked on a 1 to 8 scale from 'Delighted' to 'Terrible'. According to Larsen et al. (1985, p.13), a multi-item scale of satisfaction performs better than single-item scales[87]. These five items are all positively correlated with each other and significant at the 0.05 level.

In addition, it is necessary to account in some way for the disutility arising from longer hours of work. Ideally, this disutility should be included in the non-pecuniary advantages of a particular job. However, adding (transformed) hours of work to the existing five indices described above is problematic as the correlation between the five questions and hours is low (below 0.1 in most cases). The low correlation means that the final summary measure of non-pecuniary satisfaction can be sensitive to the weight assigned to hours compared with the other questions. Accordingly, the weight given to hours in the overall non-pecuniary satisfaction measure has been determined empirically. Hours has been squared and placed on

[85] This expansion path is not necessarily continuous across economic agents since individuals are likely to be heterogeneous in their budget constraints and in their preferences regarding combinations of N and W.

[86] Incomplete raw data, in terms of the partial combining of new and panel respondent's information, also meant that certain years could not be used.

[87] A multi-item measure uses more than one question to establish some measurement of well-being. Larsen et al. (1986, p.13) found multi-item scales more reliable over time, less susceptible to response bias, less affected by the wording of the question as well as providing an assessment of the separate components of subjective well being.

the right-hand side of the regression equation. This is equivalent to using the co-efficient as the weight in the overall non-pecuniary dependent variable.

A similar process has been followed to control for the possibility that some individuals are innately more optimistic than others and will accordingly over-rate the satisfaction derived from working. Three life satisfaction questions were standardised and summed to create a proxy for innate pessimism or optimism. [How do you feel about] Your hobbies, garden sports and such? Your sense of purpose and meaning in life? And, How do you feel about your marriage? This measure of optimism, weighted by the coefficient on optimism from the regression equation, has been subtracted from the non-pecuniary job satisfaction variable. The estimated co-efficients on both the hours and the optimism variables were both highly significant (t-statistics over 6).

Data on respondents' pre-tax income from wage and salary jobs were available only in grouped categories. The average of each category was deflated using the CPI.[88] Post-school qualifications were grouped into five broad types—higher degree, bachelor degree, diploma qualification, trade qualification and 'other' certificate qualification.[89] 'Other' certificate qualifications is a heterogeneous group that may include individuals that have received a secretarial, typing and shorthand certificate as well as specialist certificates in nursing, dentistry or veterinary science.[90] An individual's highest school grade completed was reclassified as: did not complete Year 9, completed Year 9, completed Year 10, completed Year 11 and completed Year 12.

An individual's subjective assessment of their ability at school was used to reflect academic ability.[91] In addition, variables on the number of weeks over the past year spent unemployed, and the number of years the person has worked part time and full time were used to reflect the individual's work accumulated skills.

A variable to represent an individual's social class included a self-enumerated question on class when growing up and father's school education.[92] Chapman (1981) has argued that parents' socio-economics class can produce values that aspire to 'higher order' non-pecuniary objectives. Other variables that are included are whether a person has a non-English-speaking background, frequency of attendance at a place of worship, whether the individual has children under 18 years of age (interacted with sex) and age. All of these variables may be associated with people who have different values regarding pecuniary and non-pecuniary returns.

As a final step, the following variables were converted into a series of dummy variables according to their various categories: highest qualification, highest school grade completed, subjective assessment of ability at school, social class, father's school completion status, non-English-speaking background, and parental-sex status.

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[88] Individuals with wages and salary figures of zero and greater than 499999 were omitted as outliners due to unobserved characteristics of the respondents.

[89] Graduate diploma was reclassified as a higher degree and unidentifiable qualification level was coded as system missing because of the small numbers of cases in those categories. Trade qualifications were further identified by the four major trade areas: building, electrical, metal and vehicle but this was only possible for the years 1984, 1986, 1987 and 1993.

[90] In 1994 and 1995 the response choices were restricted to apprenticeship certificate, diploma, bachelor degree and higher degree. These were recoded to reveal an individual's highest qualification in order to be consistent across years.

[91] This was recoded to the categories of somewhat above average, above average, average and below average to give enough cases in each category.

[92] Father's education was re-categorised into whether he had completed secondary school or not.

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